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AN
HISTORICAL ACCOUNT
OF THE
GREAT LEVEL
OF THE
FENS,
CALLED
BEDFORD LEVEL,
AND OTHER
FENS, MARSHES
AND

LOW-LANDS in this Kingdom, and other Places;

With References to LELAND's Itinerary, DUGDALE's History of
Imbanking and Draining, and others of the most approved Au-
thority:

By the late W. ELSTOBB, *ENGINEER*.

LYNN:

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M. DCC. XCIII.

1793



TO
HIS GRACE,
FRANCIS, DUKE OF BEDFORD.

May it please your Grace,

THERE are generally two modes of penning a Dedication; the one to extol the high, the exalted, and the most sublime qualifications of the person, to whom any work is addressed; whose pourtrait must be drawn in the stile and attitude of a General, a Hero, or a Demigod; tho' at

at the same time, the poor man may be known to be one of the most despicable characters of the age, in private life: The other is, to advertise the Reader of the beauties, the excellences, and the interesting perfections of the work, that is laid before him; and consequently he must be tacitly supposed to be a most competent judge of that work; though at the same time, the poor man may be known to be so illiterate, as not to understand a single syllable of the
subject

DEDICATION. ✕

subject, which was so happily addressed to him.

Now there is something so disingenuous in both these methods of Dedication, that the Editor of the following Sheets has totally declined them; and has ventured boldly to assert, because he can assert it with *Truth*, that the extensive PROPERTY, which Your Grace possesses in the Great Bedford Level, was, and is, the sole cause, that naturally and visibly called upon him to request the favour of prefixing Your
Grace's

Grace's Name to the Labours of a man, who had employed the greatest part of his life in studies of this nature, in Works of Imbanking and Draining.

Permit me then only to observe, that many Societies have been formed, and Corporations established, for carrying on Works of this kind; that several Plans have been proposed, and numberless Reports have been made, for this purpose; and that this very Author himself has been employed by Your Grace's
most

DEDICATION: c)

most Noble and Worthy
Ancestor, his Grace, JOHN,
late Duke of Bedford, who
gave him commission, and
commanded him to com-
pleat that Cut, which reach-
es from Wisbeach River
End, where the Great Dam
was made, to Gunthorp
fluice, thence to a place
near Peter's point, above
Sutton Washway, which
has totally drained all the
NORTH LEVEL.

Let me now humbly
hope, that the Productions
of such a Pen will be ac-
ceptable; and, that they
may

may merit Your Grace's
attention, and deserve
Your Grace's approbation,
is the sincere wish,

And most ardent desire

O F,

May it please Your GRACE,

Your GRACE's most devoted,

And most obedient,

humble Servant,

W. WHITTINGHAM.

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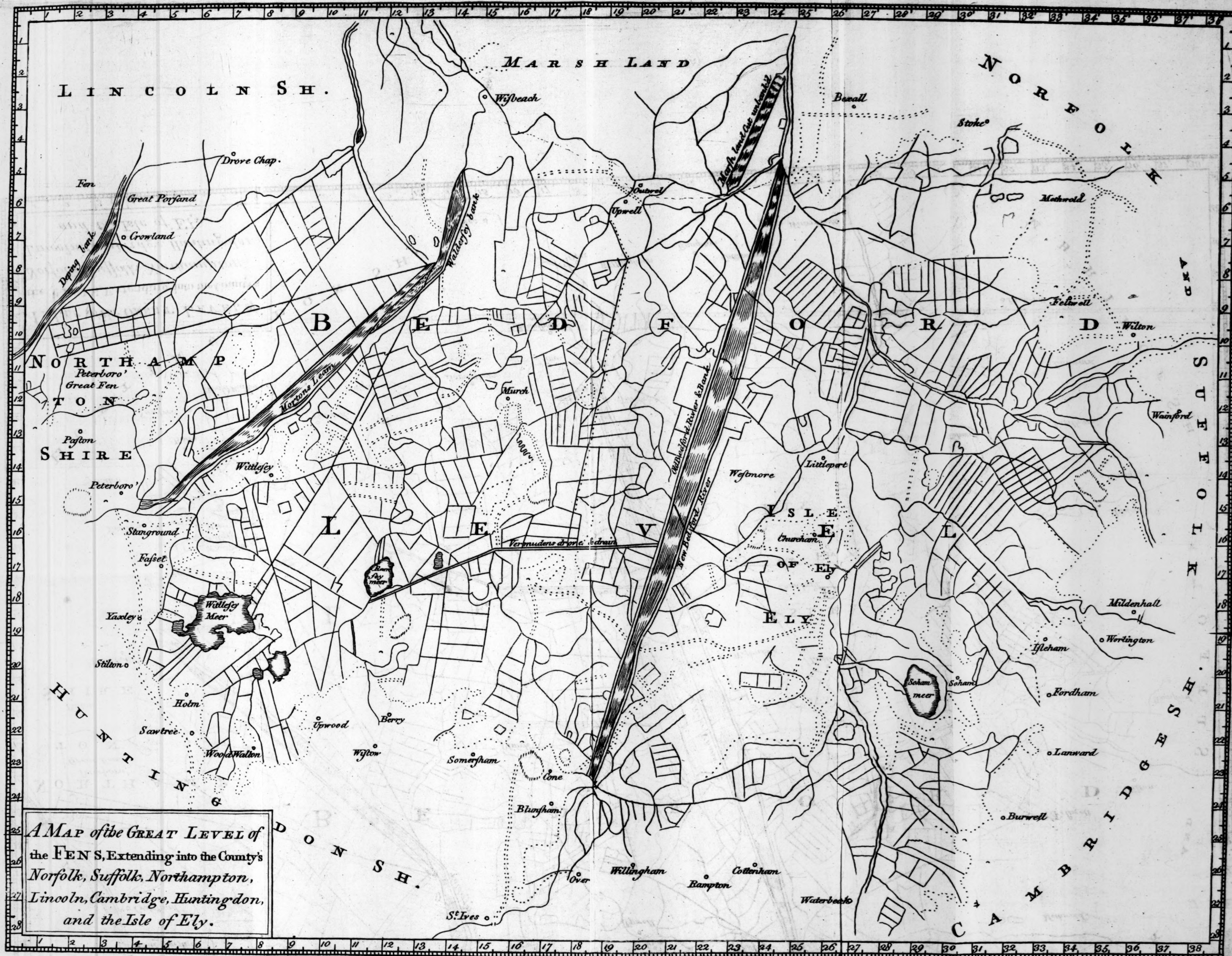
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H I S T O R Y
O F
BEDFORD LEVEL.

IT is an observation made by an ingenious gentleman, of great abilities and experience, who has been consulted in the present design of relieving and securing the North Level, and recovering the navigation of the port of *Wisbeach*; "That much having been said and wrote, upon the subject of the Great Level of the fens, he found it necessary, in order to clear his way, to deduce what he had to offer on the subject of the North Level, from its original." Which original, he very happily finds amongst the treasures

B

treasures of an ingenious imagination. But though I cannot think it necessary, in the present case, to stretch our inventions so far, as to raise a country from the bottom of the ocean, yet the great changes and mutations, which this large tract of land called the Great Level of the fens, has undergone, and the great alterations, which the state of the rivers passing through it, have suffered, seems to require, that we should look a little back into its antient, natural, and I may say original state, (not as a country to be made, but as formed and finished) so far as history, and the phænomena of nature, will enable us: that we may if possible find out, and investigate the cause, either natural or artificial, which has produced the maladies and evils, now wanting to be removed; that, by knowing the cause of the distemper, the physicians may judge what remedies to prescribe.

First then, it appears that a great, if not the greatest part of this uncertain tract
of



of land, was antiently and originally found and certain land, naturally productive of trees, shrubs, and bushes, such as grow upon firm and dry ground; and cannot be raised and brought to maturity on a rotten, moorish, and morassy soil, such as the fens in general have been for some ages past.

This is evidenced, by both the antient and modern testimonies of many, who have had an opportunity of observing the phænomena of nature, in this country. where multitudes of large timber trees, of oak, fir, &c. have been found buried under the moor, with their roots, standing as they grew in the firm soil. Dugdale, in his History of Imbanking and Draining, (Chap. 32. page, 171) speaking of the Great Level of the Fens, "says, Having done with all the marshes within the province of Lindsey, in this county (viz. Lincolnshire,) and continuing still my course South Eastward, I come next to that Great Level, which extends itself from

about Halton, and Toynton, in Lincolnshire, through a great part of six counties, viz. Lincoln, Norfolk, Suffolk, Cambridge, Huntington, and Northampton, being in length no less than sixty miles, and in breadth from Peterborough in Northamptonshire, to Brandon in Suffolk, near forty miles; all which, except the isle of Ely, and some few places of that kind; and also Holland, in Lincolnshire, and Marshland in Norfolk, (both of which have been long ago, by great industry gained from the sea,) were for the space of many ages, till of late years, a vast and deep fen, affording little benefit to the realm, other than fish or fowl, with over-much harbour to a rude and almost barbarous sort of lazy, and beggarly people."

Having thus described the land, in its lost, inundated condition, he goes on, and says, "That this vast Level, was at first a firm, dry land, and not annoyed with any extraordinary inundation by the sea, or stagnation of fresh waters,
I shall

I shall now endeavour to shew; which may perhaps seem strange to many: But when it is well considered, that timber trees will not grow and thrive, where water for the most part stands; or in a moor, which by length of time is bred and increased in such moist places, both the one and the other may with much probability be grounded. The case being then thus stated, it now remains for me to prove, that such have hereafter been bred, and prospered in several parts of this now fenny country: which is no hard matter to do; many persons yet living being able to testify, that in the late digging of those channels and drains for the exsiccation thereof; great number of such trees of several kinds have been found, mostly of oak and fir, and few of them severed from their roots; but such, as had been severed, the roots are observed to stand in the firm earth, below the moor; of which sort (says he) I myself have seen some, that were taken up in the fen near Thorney, and have had credible information of multitudes found in o-

ther places, whereof some were dug up at the cutting of that large channel, called Downham Eau, which extends from Salter's lode about four miles northward to Lynn.

Moreover in Marshland, about a mile westward of Magdalen bridge, at setting down a sluice very lately, there were discovered at seventeen feet deep, several furz bushes, and nut trees, pressed flat down, with nuts sound and firm, lying by them, the bushes and trees standing in solid earth, below the silt, which had been brought by the inundation of the sea, and in time raised to that great thickness. Add to this, what I have already observed in the isle of Axholm, concerning the trees of oak and fir, found in such great numbers, at making of those channels and sewers, for draining that fen: which though it lies not contiguous to this, yet out of all doubt is on the same level, and was apparently a woody country at first. To give any more instances therefore

fore to demonstrate so evident a truth, would be needless."

Thus far Dugdale; and Mr. Atkins, a gentleman much employed in surveys and examination of the state of the fens in his time, and who had taken pains to make inquiry into their antient state, says, the fens that are now, were formerly in the nature of meadow-land, fruitful, healthful, and very profitable to the inhabitants, and yielded much relief to the people of the high countries, in the time of great drought; the truth of this is disputed by some; but they seem plainly to have been so; for Peterborough of old was call'd Meadhamsted on account of the meadows there; and not Fenhamsted from the fens, that are now at present there: and yet most of them of the fens belong to that district: Thus likewise Ely fen, or Peterborough Great Fen was once forest, whose keeper had in it, (in the New marshes now called Marth fen,) an inclosure for keeping of sheep, and for mowing of

hay; and in Wrydoeroft, both a mansion, and a large dairy house. Hence says he, we find Leland and other antient writers, very lavish in their praises of this once fruitful country. Badeslade's history, page 15. sec. 3d.

From which accounts it sufficiently appears, that the most considerable part of the Great Level was antiently found, dry land by nature, well furnished with timber trees and woods; a great part of which was originally in the nature of forest, and the habitation and shelter of deer, &c. as appears by the horns of those animals having been dug up, in the making drains in several places; as I have been credibly informed by some workmen.

That this was the state of the Great Level, when the Romans entered this Island is highly probable, (see Baker's Chronicle, page 2.) who says, "When Julius Cæsar entered Britain, the Island was in a manner a village, being without

out walls, as having no shipping (which are indeed the walls of an island) but certain small vessels made of boards and wicker, nor any forts for defence within, scarce any houses, but what were made of boughs of trees, fastened together."

This introductory digression, I thought proper to make, since it has a tendency to elucidate the present subject.

The Britons being at that time an ignorant and barbarous people, unskilled in the arts and sciences, contenting themselves with mean and uncomfortable habitations, and being without shipping, and foreign trade; it is very reasonable to suppose, that they had never made any considerable attempts to improve, or alter the course of nature.

The Romans therefore at their coming must have found the fens, and particularly the Great Level, in its original state, viz. the greatest part a sound, fruitful soil, covered with woods and
trees;

trees; From whence it consequently follows, that the greatest part of this country had remained without any hurtful annoyance, occasioned by the natural rivers passing through it, from the time of the retreat of the water, at the general Deluge, to the time when the Romans entered the island.

As nature acts uniformly under similar circumstances, there is reason to believe, that the Great Level would have been a flourishing country to this very day, had not the operations of nature been interrupted by the works of art. It is therefore to the latter, and not to the former, that we must look for the great alterations, which have befallen this country. That these works were begun, and the principal part of them executed by the Romans, there cannot be much reason to doubt; especially when we reflect, that they remained in this island so considerable a time, as about five hundred years, keeping in pay fourscore thousand soldiers, after the
the

the island was subdued; and being an active, enterprising people, ambitious of great, magnificent works, and equally remarkable for the strict discipline and exercise of their soldiers; As no people could have so favourable an opportunity, so none were more likely to engage in such great undertakings, as themselves.

In the conquest of the island, being frequently annoyed by the inhabitants, sheltering themselves in the coverts of their woods and forests (as the Indians in America do, to this day) they were under the necessity of taking down vast numbers of trees to clear the lands, in order to come at their enemies, particularly in some parts of the fens.

Dugdale, in a quotation extracted from Tacitus, in *Vita Agricolaë*, says, the Britons complained, that the Romans wore out, and consumed their bodies and hands in clearing woods and imbanking the fens. Many arms and Roman coins have been found in
that

that country, and the long causey made of gravel about three feet in thickness, mentioned by Dugdale, being in breadth sixty feet, and extending in length twenty four miles, crosses the fen, from Denver in Norfolk near Salters lode, over the great wash to Cheerk, thence to March Plant water and Eldernell, and so to Peterborough; is a lasting monument of their labours. This is now covered with moor, in some places three, and in others five feet thick, and is supposed to have been made by Severus, one of the Roman emperors, who came over in person to Britain, as others had done, and was the first to make causeys over the fens, that his soldiers might stand on firm ground, and with ease passing over them, might fight on dry land. Many places being fenny at that time, as the rivers were unimbanked, and the tides flowing freely into them, it must be supposed, that some of the lowest parts would be covered by the influx of those tides: and the Britons inhabiting those parts of the fens, being expert swimmers, often avoided the pursuits

perfuits of their enemies, and secured themselves by swimming over the numerous creeks, with which the country was interſected.

All theſe things plainly ſhew, that the Romans were for a long time engaged in reducing and clearing the fenny parts of the country.

It will be proper in the next place to conſider the courſe and ſtate of the rivers, then paſſing through the country; and how the bordering lands were affected by them, and the tides flowing into their channels.

Dugdale, in deſcribing the rivers paſſing through this Level, begins with the river Grant; “ which, he ſays, having its ſource about Aſhwell, in Hertfordſhire, brings with it the downfalls of part of that county, and part of Eſſex, paſſes through Cambridge, and at Stretham meer, (on the borders of the iſle of Ely) unites itſelf to a branch of the Ouze, being about twenty two miles from the ſpring head.”

Then

Then speaking of the Ouze, he says, "the Ouze rising near Sifam (Badeslade says at Brackley) in Northamptonshire, passes through part of Buckingham and Bedfordshires, taking in several petty streams, and coming by Huntingdon to Erith, it there divides into two branches; the one falling East by North (near the bounds of the isle of Ely) to Stretham-mere aforesaid, and the other, now called West water, North (at the partition of Huntingdonshire, and the said Isle) under Chatteris to Benwick; there, in former ages, meeting with a part of the river Nene, at a place call'd Shrewfille, or Shrewfness, it joined with the first branch thereof (descending from Stretham aforesaid by Ely, Littleport, and Wellney,) at which place being so united they passed by Outwell, (at the partition of the isle of Ely and Marshland, to Wisbeach, and so to the sea. But at present it is otherwise; for the first branch with which Grant did unite, and now descends from Stretham to Ely, thence to Littleport, and so by Priest-houses and Rebeck to
Salters

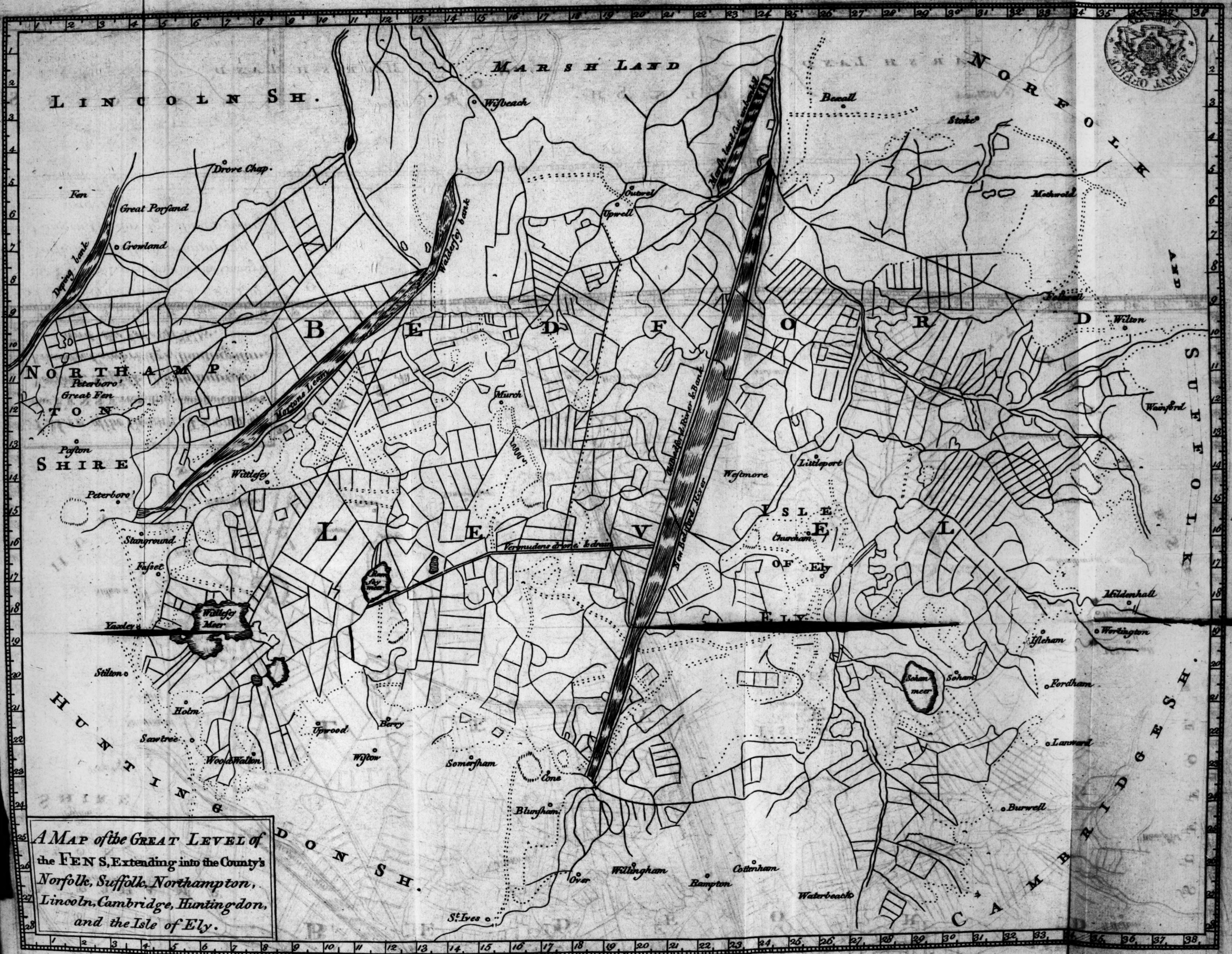
Salters-lode; these other streams, viz. Swaffham-lode and Reach-lode, out of Cambridgeshire; Mildenhall river out of Suffolk, and Ouze parva out of the confines of Suffolk and Norfolk; the river Wissey falling in by Hellgay; and at Salters-lode the other branch of Ouze and Nene (united from Outwell) which comes in there by the New Podike, and from thence in one course into Lynn Deep, and so to sea, the same deep being now the best receptacle, and most convenient place for conducting the waters out of the fens and low grounds. So that by this river Ouze, all the springs and downfalls, rills and brooks of Huntingdonshire, for the most part, Bedfordshire totally, and some part of Buckingham, Oxford, and Northamptonshires, are brought to the sea; the compass of ground affording descent to them, being six score miles at least."

It may not be improper to observe, that there seems to be a mistake, in enumerating the streams falling into the Ouze, in its present course by Priest-houses

houses to Salters-lode; among which are mentioned Swaffham lode and Reach lode out of Cambridgeshire, and Mildenhall river out of Suffolk, which do not fall into the Ouze, between Priest-houses and Salters lode, the said houses standing below Littleport, the former of these streams falling into the Grant, and the latter into the old Ouze above Littleport, where antiently it went united with it to the great out-fall at Wisbeach.

The next account our author gives is, of the course of the Nene, as follows.

“The Nene, whose head is about Cateby in Northamptonshire, passing thro’ a large tract of ground in this county to Peterborough, enters the fens near that place, having in its course taken in divers petty streams; in which fenny flat it divides itself into sundry branches; of which the chief now falls under Standground and Horsey bridge, into Whittlesea mere, and so passing through
that



A MAP of the GREAT LEVEL of the FENS, Extending into the County's Norfolk, Suffolk, Northampton, Lincoln, Cambridge, Huntingdon, and the Isle of Ely.

that mere together with Ub mere and Ramsey mere runs to Benwick, where it unites with the second branch of the Ouze before specified, and thence to sea; as I have already shewn: the second branch of this river, did take its course by Thorney barr, Singleholt and Noman's-land; from the triangular bridge at Croyland, where it united with Welland, passed away with it to Spalding, and so to sea. But this channel of Nene is now utterly decayed, and likewise that of Welland; for whereas it did antiently fall into Welland, now Welland makes a fall backward by the same course to Noman's-land, and the South Eau to Dowsdale, Clow's-crofs and Guy-hirn, and so to Wisbeach and Well, as it can to the sea.

Other branches of Nene there have been in antient times within the fens, viz. King's delph, passing a little below Standground by Raven's willows (crofs the fens) to Romney grounds, where it fell into the Nene, Whittlesea dike, a little below Horsey bridge, which falling



falling by Whittlesea town ran into Nene below Benwick; several other currents of it there were by and through the bounds of Thorney, chiefly Knorlake, the Wride, and south Eau, which have heretofore discharged themselves into the sea, (as some suppose) by Clow's cros; but of later time, since the new leam was made by bishop Morton, from Standground to Guyhirn, and so to Wisbeach, their chief, and best passage has been by that channel. This river Nene brings with it into the fens the downfall of the greatest part of Northamptonshire, and then having no present issue into the sea, divides itself, as I have shewn; and being bounded on one side by the Ouze, on another with Welland, and on a third with south Eau bank, and other banks, in the isle of Ely, it is a principal cause of surrounding a great part of the body of the fens: and not only so, but occasioned abundance of sock, with which the greatest part of south Holland, and Wisbeach (which have made banks against the same) are afflicted".

After

After this, he proceeds to the Welland, as follows:

“Welland, having its rise near Sibertoft in Northamptonshire, and taking in some petty streamlets, comes at length to Market Deeping, and St. James’s Deeping, where it enters the fens, and burdens them with all the waters and downfalls of part of Northamptonshire, Leicester, Rutland and Lincolnshires; whence passing to Croyland-bridge, it divides itself into two branches; the one leading by south Eau toward Wisbeach; the other in a most slow course to Spalding and Surfleet; where receiving the water of Glen, it goes on to Fofdike, Stow, and so into Boston Deep.”

These being all the rivers, which seem antiently to have had any communication with the outfall at Wisbeach, I shall not at present proceed to the description of any others, but shall here stop to make one or two observations.

First

First then, it plainly appears, that Wisbeach was antiently, and I may venture to say originally, the grand outfall for all the great collected body of water brought down the rivers Grant, Ouze, and a considerable part of the Nene, with all their different branches, rivulets, and rills. And was also the great mouth, or ostiary, by which the tides flowed into, and up the several rivers before mentioned, which served as so many long and large receptacles and and reservoirs, from which the Ebbs descending, greatly strengthened by the conjunction of the upland waters, returned through the mouth of the river to sea, with an impetus and force almost irresistible, and sufficient to remove any moveable impediment, which it might meet with in its way, and not only to preserve, but continually to deepen, and improve its outfall.

That there was antiently no other considerable inlet for the tides; or discharge for the outland waters, is manifest from many testimonies,

The

The haven of Lynn was antiently but a small, inconsiderable sewer, not above six poles wide, serving only for discharging of the waters coming down the Little Ouze, or Brand river, Stoke river, and the river now called Setch river, Sandringham Eau, or Nar river; but antiently Lynn river, with some other small drains, was at that time called Wiggenhall Eau, (see Badeslade's history, page 1.) And that there was no river between Littleport chair and Rebeck in antient times, a record vouched by Mr. Hoxham, surveyor to Will. earl of Arundel, shews the tract of the river being of a quite contrary nature, *viz.* more strait, than any part of the Ouze, in all the fens from Ely to Wisbeach.

When the Ouze had its proper outfall by Wisbeach, the haven of Lynn was but six perches wide, and was by due presentment said at that time, to be of a width sufficient for the haven and vessels thereto resorting, by the inlet

of the salt water, and large enough to pass away the fresh. (see Badeslade's History; page 6.)

But after the opening of the river from Littleport chair to Rebeck, or Priest-houses, and leading the waters of the Great Ouze to join those of the Little Ouze, or Brandon waters, which had their outfall through Wiggenghall Eau, by Lynn to sea, that sewer and outfall, became in time greatly enlarged; and the river Nene also taking its course that way, through Well-creek, and joining the Ouze at Salter's-lode, the inhabitants of Marshland were very apprehensive of the ill consequence they might be of to them, and procured a commission the 21, Edw. I. bearing date June 19, 1292, to have the matter inquired into. But of this, more hereafter; all that was now intended being to shew, that the great outfall was originally at Wisbeach; that the haven of Lynn at that time was a very inconsiderable one, being only a small sewer, and that the great body of water passing through the Grant, and great
Ouze

Ouze, were by an artificial cut diverted from their antient course, to Wilbeach; and brought to join the little Ouze in its course to Lynn; in which course, it was joined by the Nene, through Well-creek at Salter's lode.

The second observation I shall make is, that though the great level of the Fens is, and always has been, a flat level country, with few considerable eminences or great elevations, yet the greatest part of it was antiently, and originally sound and firm land, naturally productive of, and well stocked with timber trees and wood, as the phænomena plainly shew.

It consequently follows, that the rivers passing through it, must have run considerably under soil, and their bottoms must have laid much lower, than the surface of the lands at that time, and the surface of the lands then was much lower, than the present surface of the level now is; and as the bottoms of the rivers are in many places very little lower, than the present surface of the land, it neces-

family follows, that the bottom of the rivers at that time were greatly lower, than the bottoms of the rivers are at present.

That the surface of the level is now much higher, than formerly, appears from the accounts given by Dugdale.

In the year 1635 upon the deepening of Wilbeach river, the workmen at eight feet below the then bottom, came to another bottom, which was stoney; and in it at several distances were found seven boats, that had lain there overwhelmed with silt for many ages.

And at Whitlesea, of late years, in casting of those moats by Mr. Underwood, for the fencing his new plantation of fruit-trees, in digging through the moor at eight feet deep, they came to a perfect soil, and swaths of grass lying thereon, as they were at first mowed.

And

And the roots of the trees before mentioned, found in great numbers in most parts of the level, standing in firm ground, at considerable depths, under the moor; and the causey, extending from Denver to Peterborough, before spoken of, being covered with a moor, from three to five feet in depth, shews that the surface of the level is now raised higher, than what it antiently was.

And at the digging the foundation for setting down the fassle at Salters lode, put there (of late years) by the adventurers, in that great work of the present draining; the silt was observed to be ten feet deep, next below that three feet thickness of firm moor, then bluish gault, which the workmen judged to be silt originally; because being dry, it not only crumbled, but had the roots of reeds in it: then, below it, moor of three feet thickness, much firmer and clearer than the other, and lastly by whitish clay, which is supposed to have been the very natural bottom soil at the first.

And

And the famous Sir Robert Cotton, making a pool at the skirts of Connington Down, in Huntingdonshire, found the skeleton of a large Sea-fish, near 20 feet long, as was then conjectured, lying in perfect silt, above six feet below the superficies of the ground, and as much below the present level of the fens, which by so long a continuance in that kind of earth was petrified, as it is evident from many of the bones both of the vertebræ, and other parts, which are still preserved by Sir Thomas Cotton baronet, his worthy son, amongst other extraordinary rarities, that were collected by that learned person.

And at the setting down of Shirbeck sluice near Boston, there was found at sixteen feet deep, covered with silt, a Smith's forge, and all the tools belonging to it, with horseshoes, and other things; as some, who saw them have affirmed.

To which may be added that, in driving the piles for securing the foundation
of

of the great new sluice, set down at the mouth of the new cut, a little above Boston, in Lincolnshire, in the year 1764 at about eighteen feet deep, under the then pasturage surface, there was found the roots of trees, standing as the trees had grown, some of which were obliged to be chopt through for a passage for the piles going down, in some other parts of the pit, dug for laying the said foundation; about the same depth were found small shells, lying in the same manner as they are now often seen to lie, at the bottom and sides of the marsh creeks, which roots and shells I saw, and some pieces of the wood I have now by me, which was turned very black and hard, so that it was difficult to distinguish whether it was oak, or elm, but it looked most like the former.

As it appears from all these accounts, that the surface of this level was antiently much lower, than it now is, and that the rivers at that time running through it had their waters in their ordinary state,
kept

kept greatly under soil, otherwise the land could not have been dry, and found enough to have bred and nourished such large quantities of wood and timber trees, as appears to have formerly grown there, (even in some of the very low parts thereof;) the bottom of the river therefore at that time must have been very low, and as the high-water mark upon the coast, was much the same then, as it is now, it evidently follows, that the tides must flow a great way up in them, and into every branch and creek they met in their way; for the mouths of the rivers lying so low, the tide must flow very early into them, and there being more time afforded for the water to proceed up, every neap tide must flow to a considerable distance, and the spring tides entering with much greater velocity, and flowing so much higher upon the coast, must run up much farther into the country, and at some particular times, when driven by hard gales of north-west winds, in what is called an outrage of a tide, some large fish coming by accident

dent in the way of some of the rivers, might be carried by such a tide a great way up into the country, and upon the return of the ebb by getting out of its course might be left near the place of equal opposition, between the upward, and downward currents; for in two streams, descending contrary ways, there must be somewhere a point of equal opposition, which a late ingenious author very properly calls, the point of stagnation, as the progressive motion being there stopped, whatever soil or silt the streams are loaded with, there it will subside and settle, at such place it is, where silt, carried up by the tides, has been deposited, and now lies buried under other soil, at great distances from the sea; and this may account for the skeleton of the fish found by Sir Robert Cotton, lying in a bed of silt, covered over with soil.

But though the tide thus flowed up the rivers to a great distance from the sea, deposited some of its silt in the rivers,
and

and the mouths of the creeks, at the extremity of its flowing, and has left several remaining marks of its advances behind, yet whilst it had its free, uninterrupted course to flow, and to re-flow in conjunction with the land waters, the country was not hurtfully annoyed by it, nor were the rivers choaked, or dammed up by it; but on the contrary, by the constant motion of the waters were continually scoured, and made deeper, and better. For though, as we observed just now, there must be some where, when two streams act in opposition to one another, a point of stagnation, where some soil will be deposited, yet as in the case of the tides, and land waters, that time is but short, and in so short a time, the soil has no opportunity to consolidate, and in which no very large quantity can fall, if there is any considerable current of land-water following the returning tide, it will very easily raise, and roll away the subsiding silt, so dropt at its extremity, and the ebb, in its retreat being impelled by an additional

additional force of gravity, obtained by the more early falling of the tide upon the coast, and at the mouths of the rivers, and having taken to its aid, the force of the land waters, must of necessity act with great power, not only in preserving, and carrying out the silt and soil brought up, but in scouring, deepening, and improving the channel and outfall, and this in the ordinary course of nature, must be the effect of the tides and land waters acting in conjunction with each other; no wonder then that the rivers passing through the Great Level, were preserved in so good a condition, from the time of the Deluge, to the time of the Romans, when such a collective body of land waters always acted in conjunction with the tides, in preserving and improving the one only outfall, at Wisbeach.

To the relation given of the discoveries made near Boston, may be added the following one, communicated to the Royal Society, by the late Rev.
John

John Rastrick, M. A. of Kings Lynn;
in Norfolk: (see Philosophical Trans-
actions N^o 279—1702.)

At the laying the present new sluice
or gote, (as they call it) at the end of
Hamonds's beck, at its fall into Boston
haven, taking up the foundation of
the old gote, they met with the roots
of trees, many of them issuing from
their several boles or trunks, spread in
the ground, which when they had
taken up (the roots and earth they
grew in) they met with a solid gra-
velly and stoney soil, of the high
country kind, (but black and dis-
coloured by the change, that had be-
fallen it) upon which hard earth, they
laid the foundation of the new gote,
where those roots were dug up, which
was certainly the surface of the old
country.

This being a circumstance, similar to
what has been mentioned, of the lay-
ing the foundation of the new great
sluice

fluice at Boston, and the forge proves, that in that part of the country the old surface thereof, was originally sixteen or eighteen feet lower than it now is; and that it was likewise so sound and dry, as in several places to produce, or at least to nourish and maintain timber trees; and was at that time, an habitable cultivated country.

This likewise appears by the following relation, taken from a pamphlet intitled, the Present State of the Navigation, of the towns of Lynn, Wisbeach, Spalding and Boston, published by Mr. Nathaniel Kinderly, see the Introduction, p. 8. At the setting down a fluice a little below Magdalen fall, a stone eight feet long, and a cart wheel, sixteen feet in the earth, were taken up by the workmen of Mr. Emmerfon.

To these observations we may add, that near the river Welland, which runs through Spalding in Lincolnshire, Anno. 1696, at the depth of about ten
D feet

feet, there were found jetties, (as they call them) to keep up the old river's banks, and the head of a funnel, that emptied the land-water into the old river; and at between twenty and thirty yards distance from the present river, there were dug up, about the like depths, several old boats; which things shew, that antiently the river was much wider than it now is, or ran in another course, or both. On the other, viz. the north west side of the river, and more upward in the town, were dug up (at about the before mentioned depth) the remains of old tan vats, or pits, a great quantity of horns, and shoe soles, of a very strange and unusual form, with sharp pointed toes turned up †: which things shew, that the

† Such as both Stowe and Baker mention to have been worn, in the time of Richard II, in 1382, when, says the former good old author, began the detestable use of piked shoes and boots tied to their knees with chaines of silver, gilt; or at least with filken laces:—which enormous custom continued to the fifth of Edward IV, in 1461, that is, very near fourscore years, when a proclamation was made throughout

the surface of the country lay antiently much lower than it now does. Such it appears from these circumstances, to be an established fact, that the old surface of the country contiguous to the rivers leading up to Boston and Spalding, was from eighteen and sixteen, to ten feet lower, than the present, and about Boston in particular, at that time, when the surface was so low; the soil was so good and sound, that it either produced, or supported in some particular places at least, and those not far distant from the verges of the rivers, wood and timber trees, which cannot grow upon salt marshes, which the tides constantly cover and spread over; such as lie contiguous to rivers near the sea; it necessarily follows, that these lands

out England, that the beaks, or peaks of shoes should not exceed two inches, upon pain of cursing by the clergy, and forfeiting twenty shillings, to be paid one noble to the king, another to the cordwayners of London; and the third to the chamber of London:—it might have been one of these gigantic shoes, that was now found.

lands must either have been originally and naturally out of the reach of the tides, or they must have been defended from them by banks or other artificial means, as the lands in this country are now, and long have been. The latter could not be the case; there must have been a time, when they were entirely unimbanked, and lay open and defenceless from the sea tides: Therefore I shall consider them in that original pristine condition.

It is very well known, that the high and low water marks on the coast next the ocean, are regulated by the influences of the Sun and Moon, according as they coincide, or act in opposition to each other, and the tides are propagated along the several coasts, according to their situation, and the inlets leading to them; these therefore remaining the same, the ordinary marks of the high and low water will likewise continue the same.

The foundations of those sluices before

fore mentioned near Boston, lie about as low, or lower, than the present bottom of the river, in which there may be about three or four feet in depth at low water, and an ordinary spring tide rises about sixteen, or eighteen feet, to the level with, and often higher than the present surface of the lands.

As the surface of the land antiently was as low as the present bottom of the river, and the high water mark may be supposed much the same as formerly, it is evident, that whilst the lands bordering upon the river, laid defenceless and unimbanked, every ordinary spring tide would rise sixteen, or eighteen feet above them, and having nothing to obstruct their progress, as the surface of the land in that part of the country was then so much lower than it is now, every ordinary spring tide would evidently spread a large tract of land, as far as it could reach, during the flowing of the tide; and upon the ebb, it would return again

to the sea, but as the motion upward, or to land-ward, would not immediately stop at the first falling of the water in, or near the margin of the rivers, a large quantity would remain to fall off the surface of the land into the river, after the ebb was reduced into the compass of the low water channel, especially at the mouth of the river. By which means, the sand and silt, which might subside in it, would be secured, and the outfall preserved and kept good.

But the lands thus constantly covered and uncovered by the salt water, must have been at that time intirely in the nature of salt marshes, and absolutely unfit for either producing, or supporting of any sort of wood, or timber trees; it therefore necessarily follows, that those timber trees, which grew upon the land, when its surface lay so low, must have been planted, and grown up after the country had been inhabited, improved, and cultivated, that is, after
it

it had been recoverd from the sea, and the tides were intirely prevented from flowing over it; consequently its surface must have been so much lower than it now is at the time of its imbankation, and so continue after it was inhabited, cultivated, and in some parts planted, and until the trees grew up, and came to † maturity,

As it is probable, that this country being part of the marshes gained from the sea, by the Romans, was very early recovered, perhaps before, or soon after they had compleated the conquest of the island, when they begun to want employment for their soldiers; as the improving of a country, which they had so gained, was an object like to engage
their

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† Or rather perhaps those trees might have been *indigene*, or natives of the soil, in which they grew; till that whole district became Fens, and Marsh-grounds, by the overflowing of the rivers, or violent inundations of the sea, breaking, and destroying those banks, which might been raised by the Romans, &c.

their attention, in order to render it beneficial, and profitable, it may be concluded that they got it inhabited, and set about the cultivation thereof, as soon as possible. And as they continued in this island, perhaps near two centuries after the conquest thereof §, in such a space of time, those marshes might be improved into a fine country: become good pasturage, and fit to support and nourish such trees as might be thought proper to plant therein, which in the space of one hundred years would arrive to great maturity; and this seems to have been the case.

But after their leaving the island, the Britons and Saxons, being much engaged in almost continual quarrels and wars,

§ But if we compute from the time of Cæsar, which was about 50 years before Christ, to the time that the Romans left this island, which was 448 years after Christ, that will amount to at least 500, instead of *near two centuries*: Or if by *the Conquest thereof*, our author means the times of Agricola, in the 78 year of Christ, to the time of their leaving it, in 558, that will make it no less than 370 years, instead of *two centuries*, as above.

wars, it is likely that the banks, by which those countries were then defended from the sea, being not so carefully attended to, might begin to grow into decay, and by some sudden and violent breach thereof, a great part of that country was intirely inundated, surrounded, and depopulated; and the great depth of the ground, with which those before mentioned articles were covered, indicates the calamity must have been general, and the country must have long laid desolate, the contentions, differences, and wars, between the Britons and Saxons preventing them from attempting the recovery, till they had compleated their settlement, divided the kingdom, allotted their possessions, and instituted the several sovereignties of the Saxon Heptarchy.

But when these things were settled, and the Mercian kingdom was established in this part of the country, it is likely they would then begin to think of improvements; for that this country lay
long

long inundated, is manifest from the great accretions of the soil, which have so much heightened the surface, and left such great quantities of silt, almost every where found under the present vegetable soil. It is difficult to determine the exact time of its continuance in this lost, inundated condition, or by whom it was again recovered, but from the nature of the thing itself, it must have been a long time before it could have been effected, for what a height the banks were of that surrounded it, what a large tract of country must have been drowned, and what a great depth of water must have covered it, we may conceive it to be like a large basin, from which the water running out upon the ebbs, it was continually filled again by the floods; nor can it be conceived that any means of exhausting it could be contrived, but by the taking down a greater part of the banks, opening the breach wider, and bringing the country back as it were to its original, pristine state, by letting the confined waters
freely

freely join the ebbs, by the natural declivity of the country ; and nature work the recovery, by filling the bason with the fullage of the waters, which the tides brought into it, it must therefore have been a considerable time before any art could effect the recovery ; which however it is evident, that time and industry have nearly compleated.

If we turn our views a little more particularly to the rivers, and consider the alterations, which such accidents would occasion in them, we shall find, that their outfalls would in a little time be greatly affected thereby, even by the imbankation itself.

For while so very large a tract of country lay intirely unimbanked, and every ordinary spring tide covered as much of it as would spread over during the time from the water first rising out of the channel of the rivers, to the time of high-water, which perhaps might then be about three hours; in which time
it

it rose in the rivers sixteen or eighteen feet above the surface of the contiguous land; in the parts remote from the rivers, it would be continuing to spread itself some considerable time, after the waters were shrunk upon the margin of the channel, and a great deal would be to return, after the waters had contracted themselves into the bounds of the channel, as aforesaid; by which means the distant water would flow into the main rivers, through many large creeks and gullies, like so many pipes issuing from a stupendous reservoir, which being collected in the channel at some distance from the outfall, would by strengthening the ebbs, and joining the back waters, be a very powerful and sufficient means of preserving and continuing a good, and a deep outfall. And thus had nature formerly operated, and thus had the rivers and outfalls been preserved, kept deep and good, from the time of the Deluge, to the time of the imbankation.

But when these marshes were imbanked, and the tides prevented from spreading
ing

ing over them, and such a stupendous receptacle was taken away, and so small a quantity of ebb left to return with the land-waters, to what before there had been, the outfalls would of course begin then to decay, and would be continually worse and worse; only now and then by the assistance of great land-floods, there would for a short time be some amendment; but in dry seasons, the evil would again return; and as those floods oftener, or more seldom happened, the mischief would be alternately abated and increased; but these means being far inferior to the continual return of the former large ebbs, the outfalls upon the whole would be continually decaying, the land-waters by degrees be obstructed, and the drainage prejudiced; and in process of time, the upper part of the level must become surrounded and inundated.

This must have been the natural effect of imbanking, of those large tracts of marsh lands, extending from the margin
of

of those rivers immediately communicating with the sea, without the concurrence of other accidents.

And this must in some measure have been the case with all rivers where imbankations have been made, and their outfalls must have been more or less affected, in proportion to the greater, or less quantity of ebb water, which they have been deprived of; that is, in the proportion which the quantity of ebb taken from them, bears to the quantity of the land-water remaining to flow through them; or the proportion, which the quantity of the marshes imbanked, bear to the largeness of the rivers, from which they were taken; for this reason it is, that the Thames, and the Humber, which rivers are spacious and large, and more nighly bordered by high lands, and not having lost so great quantities of ebb water, (by imbankments) in proportion to the quantity of the tides left to flow into them, and the quantity of land-water passing through them, which
continuing

continuing to act in conjunction with their larger ebbs, have kept their channels and outfalls deep and good; whilst the channels and outfalls of the rivers Whitham at Boston, the Welland at Spalding, and the Nene at Wisbeach, which have had much larger tracts of marshes imbanked, and more ebb water taken from them, in proportion to their capacities, and the quantities of tides after received, and the land-waters passing through them, have greatly suffered by these alterations, and their outfalls and channels have been greatly prejudiced, choaked up, and almost lost.

It is true, that the inlet at Wisbeach, was after the imbankments, left large and capacious, and communicating with the Nene and the Ouze, had large rivers to receive the tides, and great quantities of land-waters to join the ebbs, in their returns; and therefore there is no doubt but it continued good, for a long time after the imbankation; but there being some particular circumstances in the manner

manner of those imbankments, I shall take them a little more particularly into consideration, after having observed, that what I have before been speaking of, are the general effects of imbankments only, which I have confined more particularly to the country about Boston; as the history and phænomena relates to those places, and which I shall a little farther pursue, as I apprehend that the state of that country, and the marshes and rivers thereabouts, was greatly similar, and have suffered much the like alterations, though perhaps not exactly the same, as the country about Wisbeach, Marshland, &c. has suffered.

As there is great reason to suppose, that the country about Boston, and Spalding, after it had been first imbanked and defended from the sea, or tides, and become inhabited, cultivated, improved, and in some parts planted, was by some sudden and great breach of the sea-banks inundated, depopulated, and lost, and continued for some considerable time an
immense

immense basin to receive the tide waters, out of which little would return at a time, and that for a considerable period, the rivers must be robbed of a great part of the ebbs, which used to return through them, in the time in which the banks were preserved good, and consequently the channels, and outfalls, losing such a great quantity of returning waters, would much more quickly choke up and decay; especially if it be considered, that by such a breach of banks, the land-floods in their course towards the outfall, would be diverted and prevented from reaching it, by meeting with the chasm of the bank, through which they would flow, and mixing with the water before received into it, from the sea, would there also deposite great quantities of their sullage and soil, brought with them from the high country, which together with the subsiding silt from the sea-water, would compose such strata, as the country is now found to consist of.

But

E

But leaving this, which I have so largely spoken of, I shall now turn my thoughts towards Marsh-land ; in order to recover which, it seems to me, that a front bank was first formed round the margin thereof next the bay, or sea ; and by banks carried along the course of the old river, from Wisbeach towards Littleport to Well, which perhaps was somewhere, between the former and the latter place, left incomplete and unfinished ; the river at that time being so deep, and running so much under soil, it might not be thought necessary to continue the banks, so far as Littleport : If this was the case, Marsh-land must have been left open on that side ; and after a time become liable to be surrounded, and annoyed by the land-floods, which, when the river at Wisbeach began to decay, would spread themselves into it, and being prevented from getting off to sea by the banks made in front, would be rendered, as it were, fenny and unprofitable ; and be put into such a state as Dugdale describes it to have been, before

before the old Podike bank was made to defend it. See page (244,) where he says, "by an antient pleading, it appears, that before the year 1181, (27 H. II.) there was neither habitation, nor ground, that yielded profit, within that part of Wigenhal from Bustarfdale, unto the south side of the same town, except the monastery of Crab-house, with some lands belonging to it, all being then waste, not in the nature of a fen. But afterwards the inhabitants of that place, viz. Marsh-land, came, and with draining and banking, won as much thereof, by their industry, as they could. And upon this occasion by a common consent amongst them, was the old Podike first raised, about the year 1223 (7 H. III.)" After which, he goes on, and says, "nor was a great part of this country any other than marsh, about that time. The reason for which opinion he there recites; see page (245)". Now, whether the before mentioned banks were left so incomplete, or not, I cannot take upon me positively to determine; but it

must either have been so, or at least, if those banks had been at first continued along the old course of the river to Littleport, they had been at some time worn down and decayed. However, as the time here mentioned, was long after the time of the Romans, and the first imbankment, and it appears by Dugdale, (see page 244,) that the Saxons had seated themselves in this country, as well as in the before-mentioned parts of Holland, about Spalding and Boston, &c. he says, that they did so is evident enough, from that authentic survey taken by the Norman Conqueror, which shew, that the towns now in being, were all extant in the days of king Edward the Confessor. Nor is it improbable, but that they were so likewise for many preceding ages; for as much as it appears, that the church of Ely, was possessed of Walpole long before; a place of no small note. by reason it gave birth to S. Goderic, the Hermit; of whom Mat. Paris maketh ample mention.

From



From hence it is highly probable, that this country, like Holland, was after the first imbankment, inhabited, perhaps at first by the Romans, and was cultivated, improved, and planted, in the same manner as the before-mentioned country had been, till by some great breach in the sea-bank, and the spreading of the up-land waters, it became again overwhelmed, and lost; and by the silt, and fullage of the waters, the land was raised much higher, than it antiently had been; for though the old towns might stand pretty near the places where they now are, as the churches may probably stand upon foundations, which likely might be laid upon the old surface of the country; as it appears by an antient memorandum, which I have seen, that the foundation of the church at Boston, was laid, about as much below the present surface of the ground there, as the roots of the trees before mentioned, found at the preparing for the laying the foundation of the new great sluice (there set down by Mr. Langley Edwards) were found to stand, and the stratum

on which that church is founded, is described to be much the same, as that on which the said sluice is placed, viz. a clay, lying upon a bed of moor, or matted vegetables, covering a stratum of white sand, at about eighteen feet under soil.

I say, though the towns may stand near the places, where the old ones may have stood, yet the surface of the ground, upon which the houses are now built, is much higher, than the surface of the country was in old times, when it was first cultivated, and improved; as appears by the furz bushes, nut trees, the large stone, and the cart wheel, mentioned to have been found near the Magdalen, at the depth of eighteen feet under the present soil.

Having shewn how the first imbank-
-dering of the large tracts of marshes, bor-
-ing upon the rivers of Witham, Glen,
and Wisbeach, must have affected, and
prejudiced their out-falls, in proportion
to

to the quantity of the ebb-water taken from them, and the capacity of their mouths, or apertures, and the quantities of the land-waters, and ebbs left to flow through them; and having observed the great inconveniences and damage, which the Marsh-land in particular must have laid under and sustained, either from the want of the complete imbanking of the river from Wisbeach to Littleport, along the original antient course thereof, or by the decay, and washing down of the banks originally made against it; which latter I am the most inclined to think might be the case; as there are some circumstances, which make it very probable that it was in a flourishing condition when the Saxons first inhabited it.

I shall now proceed to consider how the up-land waters, and the land-floods, must have been affected by the incomplete, or partial imbankation of that part of the old river, between Wisbeach and Littleport, which running as it were cross the way of the up-land

E 4 floods,

floods, in their passage to the sea, at such times as they rose out of the river, and covered the lands bordering thereon, must have been a great obstruction in their progress to sea.

For though the rivers in the Great Level must, as has been before observed, run considerably under soil, and consequently a great part of the land-floods, especially the lesser of them, be passed off to sea, through the rivers, (particularly if they happened in the time of neap tides) before they could rise on to the adjacent lands, yet the larger and more hasty land floods, when they met with spring tides, must necessarily swell out of the channels of the rivers, and cover the contiguous land, great part of which must have been at that time in the nature of land meadows, as the tide water mixing with the freshes, at such a distance from the sea, must lose a great part of that saltness, which constitutes the marshes.

In the times of large and hasty land-floods,

floods, swelling out of the rivers, before any imbankation, they must, as before observed, cover the contiguous lands, in like manner as they now do the upland meadows, lying unimbanked, along the margin of the rivers; but the country having naturally an hanging declivity towards the sea, as the descent of the water in the rivers demonstrate, and having no dams, banks, nor stops, to interrupt their passage, except the influx of the tides, they would not continue long on the upper parts of the Level, but would flow down, as it were in one expanded sheet, towards the sea, into which they would roll over the marshes, in the time of the ebbs, soon uncovering the upper part of the lands, and leaving them dry as before; except in some particularly low fenny places, where the water would be left, and remain stagnant, and form as it were small fens and morasses, and in passing over the marshes below, in conjunction with the ebbs, following the tide in its retreat to sea, would in the more soft places

place wear cavities, and form wide creeks and gullies; but having so large a space to roll over into the sea, in a few tides they would all be passed off the marshes with the ebbs into the ocean.

In this manner the land-floods were passed off to sea in a very short time; without surrounding, or much annoying the upper parts of the Level, which were not only preserved sound and good, but the parts adjoining to the rivers must have been greatly fertilized, and improved, by overflowing: And as the rivers would by those floods be filled with water, which being soon reduced within the compass of their channels, would come down with great rapidity; and joining the ebbs would powerfully operate upon the sands, and scour out, preserve, and deepen their out-falls; which for this reason also, must have been always upon the improvement, so long as nature was left to operate in her own manner, uninterrupted

interrupted by the artificial works of men. And by this means it appears, so far as human reason can reach, that the rivers and outfalls would have continued deep and good to this very period; and for aught that can be supposed to the contrary, for ever; without some extraordinary, violent, preternatural cause, such as that of a great earthquake, should prevent it, which as there are no accounts of such an event ever having occurred, and this island is so providentially, and happily constituted and situate, as not to be liable to sustain any great hurt by such calamities, and as in all probability it never was so, we may hope it never will be the case. But then, if the rivers and out-falls had been so preserved, those vast tracts of marshes, which have been recovered by imbanking, and cultivated into such fruitful countries, must have remained the property of the ocean. This has unwarily lead me into a digression; as the many particulars, which have suddenly started up, in the pursuit of these subjects,

subjects, have several times before done; from whence I shall return, to consider the imbankment of the old river, from Wisbeach, towards Littleport, in respect to the land-floods.

As this river runs cross the course of the land-floods, in their passage to the sea, the imbankment of it, must greatly stop, obstruct, and interrupt the descent of the waters above, and keep them up much longer than before, upon the lands covered by them; and they must in course spread themselves over a larger tract of country; which therefore would become inundated, and surrounded, and as the water must then come through a narrow, imbanked channel of the river, it would be a long time in running off the level, and getting to sea; by which means much of the land, which was before sound and good meadow, would now become fen, and morass: and thus the country would begin to be surrounded, and the people would be put upon the necessity

necessity of contriving such drains and sewers, as they thought most likely to convey the water the readiest way to sea; or such as might divert it, into some other courses, as might give the speediest relief to those parts of the level, in which they were more immediately interested: thus every one would as it were become engineers for themselves; and in time, a multitude of such drains would be contrived, and the body of the upland-waters, would be divided into different courses; by which means the main river, or at least some part of it, would be robbed of the land-waters before passing through it; and the water being kept above the channel of the rivers stagnant upon the land, would not only deposite the fullage, and cover the land with moor, but stop, and hinder the tides from proceeding up the distant part of the rivers, by its greater height, and would by such stoppage cause them to drop their silt in the channel of the river, and occasion its bottom to grow up, and their progress to be more and more impeded.

And

And the upland waters coming off in such a slow manner, and the progress of the tides being more restrained, and the quantity of the ebbs diminished, they would not have strength enough to maintain one certain channel, in so large an outlet, and being divided into several small ones, the water would not have sufficient force to scour out the sands, so as to preserve a deep channel. And this I apprehend has been another great reason of the decay of the antient out-fall, at the port of Wisbeach.

But the great bane, and what completed the destruction of that noble out-fall, was the diverting so large a part of the waters of the great Ouze, into the channel of the little Ouze, and so turning its course from Wisbeach to Lynn, by making a new channel from Littleport, by Priest-houses into the little Ouze.

When the upland waters were so interrupted, in their passage to Wisbeach, by the imbankment of the marshes and
rivers,

rivers, that the country above was surrounded thereby, and the lands between Well and Littleport, drowned and inundated, whilst the waters of the little Ouze, were passing freely in their usual course to sea, and the bordering country continuing in its pristine condition, a probable way of relief discovered itself; which was by a short new cut, to turn their waters down to another out-fall, with the little Ouze, viz. to Lynn; but though this cut might relieve that part of the country, yet it was certainly very fatal to the port and out-fall of Wisbeach, which by the loss of so great a body of back-water, and so great a receptacle for the tides, must much sooner and more hastily fall into decay and ruin. And as the out-fall, at Lynn, would by such a diversion of so great a body of water, be continually growing wider and deeper, so by the loss of it from Wisbeach, that out-fall, must continually be choking up, and growing shallower; and in time become insufficient to pass off the waters of the Nene itself: by which

which means those parts of the level bordering upon it, would likewise become inundated and surrounded; some means would then likely be thought on, for diverting that river down to a better out-fall also.

At what time the cut from Littleport by Priest-houses was first made, is hard to determine but it seems to have been done very early; by the following account from Dugdale, see (p. 394) "Wif-beach out-fall decaying, and the passage of the Nene by Croyland likewise passing, through the decay of Spalding river, and other hinderances, the west-water, or first branch of the Ouze, with Nene united, became weak in the passage, and so fell down by March to Well, and not finding passage by Well at Shrewsfness-point, the greatest part thereof, turned back again to Littleport, by the old forsaken second branch of Ouze, and holds that course to this day."

"This second branch of Ouze, with Grant united, being hereby debarred a
passage

passage by Wisbeach, means was put in practice to let it fall from Littleport church, to Rebech, by a lode which at the first seemed to be called Heming's-eau, and so into Ouze parva's channel, passed to Salter's-lode, and thence to Lynn: whose channel, not long before that time, was not above six poles wide, being then by due presentment, said to be both sufficient for the haven, and vessels thither resorting, by the inlet of the salt water, and large enough to pass away the fresh, as by the proceeding of a fair commission thereof, in Ann. 1378 may appear."

"Then began the waters from above Well, and all thereabouts, to seek their passage by that tract to Lynn. (Wisbeach channel and so low as the Crosskeys, which was over the face of the marshes, between Well and Wisbeach, and so downward to Terrington, utterly thereby decaying, as at this day may yet be seen.) But the people of Marshland, finding themselves overcharged by these waters, upon complaint made to

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king

king Edward the First, obtained a commission, (21 E. I.) Ann. Dom. 1293, to have the waters of Well (which antiently had their outfall by Wisbeach) to be brought and carried in *debetum et antiquum cursum* &c. into their antient channel and course. Then were there stops, mark the first, at Fendike, about Upwell Town's end near where Popham's-lode-fluice now stands; second, at Small-lode-bridge, and third, at Outwell-bridge; and order taken for opening the river from Well to Elm flood-gates, upon the confines of both counties, at the cost of the people of the isle and of Marsh-land indifferently."

"To shew that the river of Ouze had its outfall at Wisbeach, besides what is before expressed;

I. The sea-banks from Well to Wisbeach, do manifest.

II. It having been said of Wisbeach castle, that it was founded upon that famous

famous river called Wells stream. (see, Reg. Petrob.)

III. The army of king John, is said to have perished in the waters of Well."

"That there was sometime no river between Littleport chain and Rebech.

I. A record vouched by Mr. Hexham, surveyor to Philip, earl of Arundel; sheweth, the tract of the river being of quite a contrary nature, viz. more strait than any part of the Ouze, in all the fens, from Ely to Wisbeach.

II. The imposing the name of Heming's-lode, in the description of Rack-fen, in the words of the record, viz. ale, chair per Heming's-lode usq. Gnat's-lode end."

"That the waters of the isle should not, nor of old did fall down from Well, upon Marsh-land eastward, nor into Well fens in Norfolk, appears by the rolls of Upwell-leet, in the 12 E. II. many were amerced, for breaking

or hurting the banks of the fens, called the Fendike, between Well and Wellenke, and many presentments to prove, that there were banks from Upwell to Wellenke, and that they should not be broke nor cut, nor the water turned into the fens near Marsh-land: with many other testimonies."

This account is introduced in such a manner, as seems to suppose, that the outfalls of the Well and Wisbeach river were so decayed, before the making of the cut, or the dividing of the Ouze at Littleport, before mentioned; that it was principally to remedy the inconvenience arising from the reverting of the waters, of the first branch of the Ouze, by Benwick, and those of the Nene with it, from Well to Littleport, that this said cut and diversion of the water, at the said place, into the little Ouze was attempted.

But it seems to me, much more reasonable to suppose, and I think the subsequent part of that account seems to imply it,

it, that the said channel was made before these waters took that retrograde course, such an effect must have been the natural consequence of making such a channel; for the channel of the little Ouze, lying considerably lower than that of the great Ouze, between Littleport and Well, when this communication was opened, it would run the waters of the great Ouze much lower than their antient gauge at Littleport

For though the channel of the little Ouze, was at that time too small and narrow, to pass such an additional body of water, freely towards its out-fall, yet being unimbanked, and the contiguous lands lying open, the waters carried into it, would naturally spread themselves over it, and by that expansion maintain such a fall at Littleport, as would not only in part prevent the great Ouze from pursuing its antient course, to Well, and to Wisbeach, but would cause part of the waters of the other branch of the Ouze and Nene, to revert in a retrograde course, when arrived at Well, toward

F 3

Littleport,

Littleport, in the manner before spoken of, especially in the time of the lesser floods. But if by this means one part of the level, on the east side of the river, viz. all that large tract from Southery to Soum, and about the isle of Ely, would become inundated and surrounded, till the river to Lynn was worn sufficiently large, and deep enough to convey the waters off, as in some years after it appears to have been.

That the waters of the great Ouze, was thus early diverted, and turned into the little Ouze, is evident by the foregoing account, in which it is said, about that time, the channel at Lynn were not above six poles wide, and was, by due presentment said, to be both sufficient for the haven and vessels thither resorting, by inlets of the salt waters, and large enough to pass away the fresh; as by the proceedings of a fair commission thereof, in Ann. 1378, may appear.

It is not to be understood, that the channel at Lynn was, at the time that presentment was made, so small and narrow, but that it antiently and formerly had been so. For in the year 1363, the (36 E. III.) a commission was granted to Robert de Causton, Hugh Lovet, Gilbert Barnard and others, for the inspection, care, and repair of the banks between Terrington and West Walton. And to Robert de Thorpe, Richard de Walkefare, Robert de Causton and others, for those between South Clenchwarton, near Lynn and Wiggcnhall.

About which time the inhabitants of Wiggcnhall, Iffington, Tilney, Clenchwarton, Watlington, Runcion, Holm, Setchithe and Westwinch, (all in the province of Marsh-land,) exhibit a dolefull petition to the king, shewing, that whereas the said country of Marsh-land, had been much overflowed and furrounded, by great and violent floods of salt water, to the extraordinary da-

mage of the said king, the whole realm, and whereas the river going to Lynn, had used to run between certain banks, distant asunder twelve perches, at which time all people had sufficient passage with their boats, to and from, and the fresh waters free course to the sea; the banks on one side of the said river was at that time so low, by reason of the before mentioned floods, that the said river was then a full mile in breadth: (see Dugdale p. 260 and 261.)

This petition, preceding the date of the aforesaid presentment, shews, that the narrowness of the channel there mentioned, did not relate to the time then present, but to the state of the river, as it formerly and antiently had been, for it appears by this petition that, before the time of that presentment, it was by the breach of the banks got to be a mile in breadth.

And as nothing seems to have been done, in consequence of this petition,
another

another to the same purport was exhibited in 1378, (1 R. II.) adding that, the said water, by reason of the extraordinary breadth, after the banks on one side thereof were worn away, had so great a power upon the banks on the other side, that all the towns in those parts were frequently overflowed, and the charge of maintaining the said banks grown so great, that they were not able longer to support it, so that their country was in much danger to be totally destroyed, in case some proper remedy were not speedily used. Upon which, a commission was appointed, and jurors sworn; when it was presented, that the before named river, running up from the main sea into the country, through the midst of the towns of Clenchwarton, Tilney, Iffington, Wiggenhall, Watlington and Runcion town, and farther, even to Podike, were through this extraordinary rage of the sea, so miserably broken and torn, that the greater part of the lands and tenements in South Lynn, Hardwick, Westwinch, Setchithe

Setchithe magna, Setchithe parva, was overflowed and destroyed. And that there was no other remedy for the safety of those towns and the parts adjacent, against the forementioned dangers, but only reducing the said river within narrower bounds, and other means following.

And they said, that such a restraint thereof might well, and conveniently be done, for the safety before mentioned, in a certain place called Larkshirne in South Lynn, in this manner; viz. that whereas the same river did in that place, contain in itself forty perches in breadth, (every perch being reckoned at sixteen feet) it ought of necessity to be restrained in that place, on both sides, for the safety of those towns, thirty-four perches, every perch being of length aforesaid; so that the breadth of the channel of the same river, should be reduced to six perches.

This seems to have been the same presentment

ment before mentioned, at which time, and before the river was grown to be in some places a mile, and in other places, where it had formerly used to be, six perches, it was then become forty perches, equal to one furlong in breadth.

And as has been before said, that about the time of making the new channel from Littleport, by Priest-houses, and diverting the waters of the great Ouze into the little Ouze, the channel at Lynn was not above six poles wide, that diversion of the great Ouze, must have been made some ages before the time of these presentments; for it is not to be supposed, that so great an alteration could have been effected in a short space of time.

It is hard to determine at what time this was done, but it is probable the course of the river from Wisbeach to Littleport, was imbanked in the time of the Saxons, who inhabiting the country

try of Marsh land, when the surface thereof lay sixteen or seventeen feet lower than it now does, if the Romans did not do it before, they must have been under a necessity of doing it then, for the securing the country from the upland-floods, which otherwise must have so often descended upon them, as to have kept it almost continually inundated and furrounded; and rendered unfit for cultivation and profit; which by the phænomena before mentioned, seems not to have been the case at that time; however, afterwards it might have been so made, (by wearing down the banks) as mentioned by Dugdale, before the time of (27 H. II.) 1181,—which occasioned the making of the old Podike, to recover and defend it.

As therefore it seems probable, that the course of the river between Wifbeach and Littleport, must have been imbanked in the time of the Saxons, when the surface of the lands were so much lower than they now are, the
parts

parts of the Level above that river, must have been in their time, if not before, annoyed by the stoppage of the waters by those banks.

And though several expedients may have been, and certainly were made use of by sewers and drains, leading into the principal rivers, to convey the waters down to sea, by which means the channels and out-falls would be for some time preserved; yet by the neglect of those drains and sewers, great inconveniences would arise, and great part of the level would be kept inundated and surrounded: which would induce the persons immediately interested, to seek some other ways of relief; and upon this principle it is most probable, that, by neglect of the drains and sewers, at first formed, and contrived to drain the waters of that part of the Great Level, into the great channel of the Ouze leading to Wisbeach, that the waters of the great Ouze were turned into the little Ouze; and that at a time when the out-fall might be yet in a tolerable good condition, and
perhaps

perhaps might have so continued, had those sewers and drains been properly maintained and preserved, and had the waters of the great Ouze, not been diverted and turned out of their antient course.

And that this has been the case, seems to appear, by the account contained in Dugdale; who says, it hath been a long received opinion, as well by the borderers upon the fens, as others, that the total drowning of this Great Level (whereof we have in our times been eye-witnesses) has for the most part, been occasioned by the neglect in putting the laws of sewers in due execution, in these latter times: and that before the dissolution of the monasteries by king H. VIII. the passages for the water were kept cleansing, and the banks with better repair, chiefly through the care and cost of these religious houses.

As after the first imbankation of the marshes, and rivers by the Romans, it became necessary to contrive proper drains and sewers, to convey the waters
off

off the lands into the main channels, and as the property of most of the lands in the Great Level, were at, or soon after that time, vested in the religious houses, the rulers and governors of which, were very assiduous to maintain and improve their several properties and interests.

Upon those principles several useful drains and sewers appear to have been contrived and formed by them, and great improvements in their particular districts to have been made; yet, as many contentions and disputes relating to their rights, properties, and grants, often arose between them, by which means the sewers and drains were neglected, and grew into decay, and by that means formerly, as well as latterly the greatest part of the Level became inundated and surrounded, and the outfall suffered damage and decay. With an intent therefore, more effectually to remedy these inconveniences, it seems to be, that the waters of the great Ouze were turned, as before said, into the channel of the little Ouze, and
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that before the outfall at Wisbeach became greatly decayed. But after this was done, and the waters of the Nene were either turned down in the same manner towards Salters-lode, or found that course of themselves, by meeting with obstructions at Wisbeach, which forced them to find it out, then the outfall at Wisbeach having lost such great bodies of back-waters, must have decayed with a celerity proportional to the improvement, and increase of the outfall at Lynn, which had acquired the additional advantage thereof, so that in process of time, the old passage of the Ouze, and a great part of the Nene, became intirely lost, and the outfall ruined; and the haven of Lynn became the great and principal sewer and outfall to the levels.

By the foregoing accounts and reasoning, it appears that, the decay and loss of the outfall at Wisbeach, and the inundation and surrounding of the Great Level, has not been owing to any
regular

regular operation, which nature was carrying on to produce those effects; but to works of men, which have thwarted and obstructed nature, in the regular course of her work; by which she had maintained the Level in a fruitfull condition, and preserved the rivers and out-falls deep and good, for a long succession of ages. And for aught of any thing that appears to the contrary, from the time of the general deluge, to the time of the imbankation of the marshes.

And as the decay and loss of the out-falls, of the several principal rivers, by which the waters of the Great Level were conveyed to sea, appears to be owing to such works and accidents, as have apparently been done, and that country is liable to, and actually has at many different times sustained, there can be no need to have recourse to such violent and perpetual causes, as earthquakes, the violence of which, it does not appear this happy country has ever been considerably affected with.

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Having

Having shewn by what means the river and out-fall at Wisbeach came into decay, and in a manner lost, I shall now consider, how the upper parts of the Level were preserved sound and good, when the surface of the country was so much lower than it now is, as it appears to have been, and the tides at the mouths and out-falls of the rivers rose as high, if not higher, than they do at this present time, and covered the marshes lying near them sixteen or eighteen feet in depth.

In order to account for this, it may not be improper to mention, what an ingenious and judicious gentleman has said in his report, concerning the drainage of the North Level of the fens, and the out-fall of the Wisbeach river, in p. 7, he says, it is true, that the supposition of so large a channel, would bring a much greater influx of tide into the country; for it appears that the high spring-tides flow at sea, higher by near five feet, and the ordinary spring-tides above a foot higher than the ordinary surface

surface of the water at Peterborough-bridge, when the levels were taken, (which levels were taken by myself in in the year 1767) yet by the same rule, that the waters require a declivity to seaward at low water, on account of distance, it would require a declivity to land-ward on tide of flood; that is, distance requiring time, it would be considerably ebbd at the river's mouth, before it would be high water at a distance up the river.

From this observation, I shall now more particularly consider the state of the rivers Ouze and Nene, and the out-fall at Wisbeach, as they antiently were in respect to the lands in the upper part of the Level.

It appears by the discoveries made about Spalding and Wisbeach, before mentioned, that the surface of the lands in that part of the country, were antiently about ten feet lower, than they are at present; and when the river and out-fall at Wisbeach was the channel, which

conveyed the great body of the Ouze and Nene waters unitedly to sea, not only before, but considerably after the first imbankment of the marshes, especially whilst the original drains contrived to lead the waters into it, were kept in good order, and before the great Ouze was diverted from it, the said river and out-fall, must have been preserved in a good condition for some time; during the continuance of which, channel must have been kept low and deep.

It will not be difficult therefore to allow, that the low water mark in the channel, at or about as far distant from the town as the present river's end is now, might stand at about eight feet beneath, or lower than the surface of the lands there at that time. And that there might be a depth of about twelve feet water, at low water in the channel. This being allowed, which are circumstances something similar to the state of the present channel at Lynn, which is
now

now become the great out-fall to the waters aforesaid.

It will appear by the levels taken in the year 1767, that the low water mark at the river's end, at that time was as low as it now is at the first beacon at the eye, and the bottom of the channel at the former place, nearly as low as that in the latter place.

For by the said levels it was found, that the low water mark at the said beacon was ten feet, seven inches lower than the said mark at the river's end, and the land's being now found to be seven feet, four inches, seven-tenths, higher than the low water mark at that place, consequently are seventeen feet, eleven inches, seven-tenths, higher than low water mark at the beacon; but the antient surface of the country being about ten feet lower, than it now is, must have been but seven feet, eleven inches, seven-tenths, say eight feet, higher than the present low water mark at

the beacon, and the low water mark being supposed eight feet under the antient soil, must have been just about as low at the river's end, as now at the said beacon, where there being about twelve feet water at low water, which is the same depth as is supposed to have been at the river's end, the bottom of the channel must therefore have been about level with the beacon; which is much the same result, that the author of the Report before mentioned, has brought it to: who choosing to save the trouble of collecting unconnected facts, formed an hypothesis, as might more readily lead him to the conclusion, and seeing the necessity of large and deep rivers, chose rather to suppose, than describe them.

But the great difference between us is, that he supposes those mutations and changes, which have inundated and surrounded the level, choked up the river, and ruined the antient and original out-fall at Wisbeach, have been
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owing to the regular and secret operations of nature, which he makes both the instrument of producing a country, and destroying it.

By the same uniform manner of proceeding, he does indeed seem to find himself under the necessity of taking a little assistance from art, where he supposes, that those small imbankments, made with so much facility, by supposing the tide-waters from their original receptacles, were the primary cause of those new formed rivers falling into decay.

On the contrary, it appears from history, facts, and discoveries made, that nature had for a long course of ages been carrying on a salutary work, continually advancing the good of the level, and the improvement of the rivers and out-falls; which there is all the reason in the world to believe, would have been continued down to this very day, had not her operations been thwarted,

and interrupted, not by the feeble effort of a few, poor, ignorant, unskillful fishermen, but by the stupendous work of a mighty and potent people, who have left them as testimonies and proofs of their skill, to surprise and amaze succeeding generations.

But leaving this digression, I shall now turn my thoughts on the upper part of the Level, particularly about Peterborough, and consider the state of the lands in that neighbourhood, as they seem to have stood in relation to the river and out-fall at Wisbeach, as before specified.

That the Level in general has been lower than it now is, many discoveries evince. And those swaths of grass, found by Mr. Underwood at Whittlesea, lying upon a perfect soil, eight feet below the present surface, indicates that the antient soil was thereabouts, eight feet lower than at the time of their discovery: and as it seems to appear by
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the levels taken, that the land by the town-side at Peterborough, is about two or three feet higher than the washes at Whittlesea, it may be supposed, that the lands at Peterborough were antiently about five feet lower than at present, and as they were then (those that lay next the river) in the state of meadow, and the more high parts, forest, it may easily be granted that the waters in the river run four or five feet under the contiguous soil.

Now by the levels, which have been taken, it appears, that the present surface of the lands adjoining to the town, are about twenty feet, nine inches, higher than the low water mark, at the first beacon at the eye, at the sea below Wisbeach, and from the deductions before made, it was concluded, that formerly the low water mark and the bottom of the channel at the river's end, were as low as they now are at the beacon.

And indeed I suspect, that more antiently

tiently they were at both places considerably lower: as the marshes and lands near the out-falls of the rivers, seem according to some accounts, to have been in some places sixteen or eighteen feet lower, than at present.

And though the high and low water marks on the coast, next the open ocean, must continue much the same in like circumstances, yet in the deep bays, and near the mouths of the rivers, the channels and courses of the floods and ebbs, amongst such large beds of sands, as there are lodged in the bay, between Lincolnshire and Norfolk, may so alter as to vary the high and low water marks in particular places, as seems at some time to have been the case of the channel leading from Lynn to sea, down as low as the antient Fellney, and Farrier Roads: for which see Badeslade; page 60.

But now to return; the present surface of the land at Peterborough, being
as

as before said, twenty feet higher than the low water mark at the river's end formerly, and being antiently supposed to be five feet lower than it now is, it must have been fifteen feet higher than the low water mark at the said river's end, and the surface of the water being supposed four or five feet lower than the lands, must have been ten or eleven feet higher than the said low water mark, at the river's end, which is upwards of three feet more fall, than there now is at that place; but there is great reason to suppose from the observations above made, that the fall must have been eight or nine feet more than it now is, though at that time the surface of the water at Peterborough, was seven feet and a half lower than it is now; which is but about four feet and a half, higher than the present bottom of the river there.

The low water mark at the river's end, having been formerly as low as it now is at the beacon, viz. eighteen feet,

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two inches, and four-tenths lower than the present ordinary surface of the water at Peterborough-bridge, and it appearing by observations made by Mr. Swinton, on a large spring tide, that below the river's end, at the distance of about twenty eight miles from Peterborough, the water flowed about five feet higher, than the present level of the water there, and by the line laid down by him, in the scale of levels taken in 1767, it appears that the same tide rose at the river's end, (which is at the distance of about twenty three miles and a half from Peterborough) three feet nine inches, above the said level; the difference in distance is about four miles and a half, and the difference in the height, of flowing above the line of the present level, is about one foot, three inches, therefore when the surface of the water at Peterborough ordinarily stood seven feet and a half, lower than it now does, such a tide must have risen twelve feet and a half at the former place, and eleven feet three inches at the latter, viz.
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at the river's end, higher than the level of the water at that time at Peterborough, and as there appears to be a difference of one foot three inches, of its flowing above the horizontal level, in the different distance of four miles and a half.

And if it be supposed, that the surface of the water in the time of its flowing, makes a regular inclined plane, declining from the sea into the country, (which though it may not be mathematically true, yet it may have some analogy to it) the differences of heights above the horizontal level, taken from the most distant point, to which the tide would reach, would be proportional to the different distances of the several places, from the said point, or to the different distances of the places themselves, reckoned from the sea; which rule being taken, as a rule of proportion, that if the difference of flowing in four miles and a half, is one foot, three inches, the said difference in twenty three miles and a half,

half, that is, at the distance of the river's end, from Peterborough, will be six feet, six inches, which as the water there in its ordinary height, was supposed to be at that time, five feet under foil, it would then rise one foot, six inches on to the land, that is, supposing it had continued its height at the river's end, till the tide had arrived at Peterborough.

But as in all probability the tide must have been three or four hours in passing from the river's end to Peterborough, in that time it would be greatly fallen at the former place; by which means the height of the latter would be much abated, so that it cannot be estimated, to have risen much above the surface of the meadows, where it would remain but a very short space of time, and rather improve than injure them.

But as the aforesaid gentleman observes, this was a very particular tide, such as only happens from such a coincidence of circumstances, as concur but very seldom, and rose above the ordinary
flowing

flowing of spring tides, about three or four feet; from which it may be concluded that the meadows about Peterborough, were antiently not annoyed by the flowing of the ordinary tides, though the rivers were antiently unimbanked, and the surface of the country was considerably lower than it now is.

And as this instance seems analogous to the state of the other rivers, antiently passing through the Great Level, as well as other parts of the flat countries, it is manifest, that the soil of the Levels at a distance from the sea, might be found and good, and free from annoyances of floods, when the rivers were unimbanked, and the surface lower than it is at present.

For as the author of the aforefaid report observes, (page 7,) that the land-floods seldom rise in the open tide-ways, and therefore, as has been before observed, the upper parts of the Levels would never be hurtfully annoyed thereby. As the rivers being deep and low, they with the natural declivity of
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the country, and nothing to interrupt the freedom of their descent, if at any time they rose on the land, would never stay thereon, so long as to prejudice the soil, or hurt the productions; for which reason the Levels might be then, as phænomena indicate they were, a flourishing country, stocked with wood and timber trees, which having stood for such a multitude of years, some of them must have been very large; as Dugdale describes those found in the isle of Axholm to have been; (see page 141,) where he says, on making several channels for the draining thereof, great numbers of oak, fir and other trees, were found in the moor; the oak trees lying somewhat above three feet in depth, and near their roots, which do still stand as they grew, viz. in firm earth below the moor, and the bodies for the most part northwest from the roots, not cut down with axes, but burnt asunder, somewhat near the ground—as the ends of them being coaled, do manifest; of which sort there
are

are multitudes, and of an extraordinary bigness; viz. five yards in compass, and sixteen yards long, and some smaller of a great length, with a good quantity of acorns near them, and of small nuts, so many, that there have been found no less than two pecks together in some places.

But the fir trees do lay a foot or eighteen inches deeper, of which kind, there are more than any other: Nay, in the year 1653, there was a fir pole taken up by one Robert Brown, of Haxey, thirty-six yards long, (besides the top) lying near the root, which stood likewise as it grew, having been burnt, not hewn down, which tree bore at the bottom ten inches square, and at the top, eight.

About twenty years since, (in the same discourse he says,) in the moor at Thurn, (near five feet deep) was found a ladder of fir, of a large substance, with about forty staves, which were thirty-

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three inches afunder, but fo rotten, that it could not be got up whole. And in Haxey Carr, at the like depth a hedge with flakes and bindings.

The truth is, that there are fo great a number of trees, thus overgrown with moor, through a long time of ftagnation of the freth waters in thofe parts, that the inhabitants have for the fpace of divers years laft paft, taken up at leaft, two thoufand cart loads in a year.

And afterwards (page 174.) fpeaking of the Great Level of the fens, and the trees, &c. found in like manner therein, he fays, add hereunto what I have already obferved, in the ifle of Axholm, concerning the trees of oak and fir, found in fuch great numbers, in the making thofe drains and fewers; which though this fen lies not contiguous to the other, yet out of all doubt it is on the like Level, and was apparently a woody country, as the former.

To this account of Dugdale, I fhall
take

take the liberty of adding, that in the survey of the lands in Sutton and Mepal levels, and others adjacent, in the counties of Cambridge and Huntingdon, in the year 1750 in my perambulations over the said levels, at the bottom and sides of many of the drains made therein, I observed multitudes of roots of large trees, standing as they had grown, at the depth of about three feet under the present moorish soil, from which the bodies had manifestly been sawn off, and some of which I then saw lying at a small distance from their roots, at the same depth before mentioned; and I was credibly informed, that great numbers had been, and were still found, felled; and lying in the like manner.

From which it appears, that the surface of this flat country, in the several counties through which it extends, being much upon the same level, was in the parts distant from the sea, or the upper parts thereof, about five feet lower than it is at present, which parts were

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then

then similarly and generally productive of, and plentifully stocked with, wood and timber trees, multitudes of which, have manifestly been taken down by the hands of men; some being burnt, and others sawn down, and that not with any view of profit, use or merchandize; since they were left lying useless upon the places, where they grew, or very near thereto; they therefore in all probability, must have been taken down for military services, in order to clear the way, and to destroy the shelter of those people, who were secured thereby.

And as it appears by antient accounts, that the Britons, the inhabitants of this island, were a barbarous, illiterate, and a sort of savage people, making use of their woods not only for shelter and security, but for their towns and habitations, it is not to be wondered at, if they took the advantage of the incumbered state of the country, to secure themselves from their invaders and
enemies,

enemies, the Romans; who as they must be put under a necessity of clearing their way, to get at them, so by the large armies, which they brought over, they were the most likely to undertake so laborious a work.

And as it appears, that in Flanders (which was a country of much the like sort, with those called the fens) they employed themselves in the like labours; for which see Dugdale, (page 10, chap. 5,) where he says, this country was part of Gallia, but so full of woods and fens, that the victorious Cæsar could not conquer it: though he subdued all France, except the impassible fenney parts, in the province of the Menapii, which Cæsar could never possess; as Dion Cassius testifies, who speaks of Cæsar thus.

After this, he marched with his forces against the Morini, and the bordering Menapii, who as he thought, had been terrified by his other warlike atchieve-

ments, and easy to be conquered; though he subdued none of them. However, they not dwelling in towns, but in cottages, within fenny places, compassed with thick woods; having hidden whatever they most esteemed, did more annoyance to the warlike Romans, than ever they received from them.

It is true, that Cæsar, cutting down the woods, did attempt to pass the fens, but by reason of their greatness, and that the winter season approached, despairing of success, he forbore the enterprise.

Here is a description of a country and people, similar to the antient state of our fens, and the inhabitants of this island, invaded by the same people, who in order to make their conquest, engaged in the great labour of cutting down the woods: In our island they completed their conquest, maintained a numerous army of fourscore thousand men; and we find great multitudes of trees

trees taken down, and lying buried under a fictitious soil; can there then be any reason to doubt, that those trees so found, were taken down upon the same account, and by the same people, viz. the Romans?

And as most of the low lands in this island, contiguous to the imbanked marshes, which are now called fens, have antiently been in the like circumstances, with those now treated of, as appears by the great number of trees found in like manner, buried therein, and as the mutations therein, and the the rivers passing through them, seems to be similar to those, which have happened in the Great Level, and countries adjacent, there is great reason to believe, they have arisen from similar causes, viz. the works of art, and the schemes and labours of men, and principally of the Romans.

Returning now to the consideration of the antient state of the river about Wif-

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beach,

beach, and the tides flowing into it, I have to observe, that the surface of the country thereabouts, being at least, eight or ten feet lower than it is now, and the marshes nearer the sea, and perhaps a great part, if not the whole of Marshland, being sixteen or eighteen feet lower than at present, every ordinary spring tide, must have risen twelve or thirteen feet higher than the marshes below Wisbeach, and five or six feet higher than the lands in the neighbourhood of that town.

By which circumstances it clearly appears, that neither Wisbeach, Spalding, Boston, nor any of the towns of Marshland, could have been built, or have been extant, before the first imbankations by the Romans; and as Dugdale asserts, that most or all of the towns in Marshland were extant, and inhabited by the Saxons, and the tan vats and shoes, being of the Saxon mode, found near Spalding, shew that the same people also inhabited those parts, it plainly follows, that these countries must have been

been imbanked before their time, which therefore proves, the imbankation to have been a work of the Romans, as there were no others before their time likely engage in such an undertaking; for any small and inconsiderable bank, in such circumstances could have been of no manner of utility.

Having now traced out the causes of the decay of the river, and the great primary out-fall for the waters of the Great Level at Wisbeach, I shall next take notice of some of the means, which were the most early attempted, for the restoring of the waters, and the recovery of them.

Dugdale, (page 299,) speaking thereof says, "I shall next take notice of the manifold endeavours for the recovery, and the vast expences which have been used in order thereto, and as after the imbankation, the country near the out-falls of the rivers became liable to sustain damage, by casual breaches of
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the banks, by the violent force of the sea, agitated and driven against them, by storms and tempests, and the upper part of the Level to be inundated, by the want of providing, or the neglect of maintaining, proper and sufficient drains and sewers, for its preservation and relief."

He mentions a dreadful inundation of the sea, which happened by a breach at Wisbeach, occasioned by a violent tempest, (in 21 H. III,) in the year 1236, which beginning the day after Martinmas day, lasted for the space of eight days, and destroyed many small vessels, cattle, and men.

And about seventeen years after, there happened such another woeful accident. Whereupon the king directed his precept to the sheriff, to distraign for the repairs thereof, upon all those who had lands within the precincts of the old banks, in those parts of Wisbeach, according to the quantity

quantity of their tenures. Which losses, says Dugdale, though they were very great, might the better have been supported, had not the obstruction of the fresh water annoyed them in a more than ordinary measure, which so much increased, that the tenants of the bishop of Ely, in Well, Elm, Wisbeach, Leverington, Newton and Tyd, complained thereof to the king, and obtained a commission to make inquiry, and to cause the said banks of Rughmere to be repaired.

Within a few years, the sea banks were broken again, and another commission appointed.

But, says he, those irruptions of the sea, as they were casual, so were they not frequent; nor did the floods continue so long upon the land, as to destroy it by drowning; the stagnation of the fresh waters producing much more damage; which for want of evacuation, were a constant annoyance to the

the whole country thereabouts; inso-
much that the inhabitants of Marshland,
discovering the danger of that province,
by the increafe of those waters, did
(in the 21 E. L.) in the year 1292 pro-
cure a commission to inquire farther
concerning the same; who setting at
Upwell upon the Monday after the feast
of St. Peter next ensuing, and taking
into consideration what ought to be
done, for restoring those waters of Up-
well, (for so that great river Ouze, which
had formerly passed that way, was then
called) to their due antient course, did
with the assent of the country, ordain
that there should be three dams made,
one at Upwell-bridge, another at Little-
lode-bridge in Upwell, and the third,
at Fendike-lake in Upwell also.

And because the inhabitants of Marsh-
land, at whose instance the said com-
mission was procured, perceived that
the ordinance for the making of those
three stops, would be for their benefit,
they, without any authority from the
said

faid justices, given to them, or from the sheriff, or any bailiff of the hundred, did of their own accord, and contrary to the tenor of the before specified commission, make a stop of the said water, at Littlelode aforesaid, and so contrived it, until by the force of water with the help of some persons, who passed that way with their boats, part thereof was opened.

And finding it so open they procured another Commissioner, who seemed to complain of the irregularity of the proceedings of the said inhabitants of Marshland, in making the said Dam without proper authority given to them for the doing it; not that it was thought wrong in itself, for at the same time the same Commissioners being appointed to view the Podike, received a verdict from the Jurors impannelled and sworn, that there was a necessity, the water at Upwell should be stopped at the house of one Ralph Smith of that town, and that the old
course

course thereof should be cleansed and enlarged from the sluice at Elm, to that stopped at Upwell, forty foot in breadth, and made in depth full six feet more than it was at that time.

And to keep the water out of the work, whilst this was doing, it was ordered, that the remainder of the aforesaid Dam should be taken up, during the continuance of the work of scouring and cleansing.

But whether this work was undertaken and finished, or not, is uncertain: though it seems to appear, that not only that Dam, but the other too, according to the order before made, were put down, or at least one of them; viz. one at the said place, called Little lode, and another at a place called Waddingstow: for it appears by the presentment of the Jurors, given in to the Commissioner appointed to make inquiry, in 27. E. I. in the year 1298, concerning the said stop at Little

the lode, by which means the water could not have its passage to sea accordingly, as it had antiently used.

That Robert Ruffel, bailiff to the abbot of Ramsey, John Mayner, Walter Halleman and others forcibly broke down that Dam at Small-lode (or Little-lode) and that one Richard Curseys had done the like at Waddingstow: Whereupon the sheriff had command to take them all, and imprison them, until he should receive farther directions therein.

Lynn having at this time, by the enlargement of its river, become a more considerable port, had increased its trade and shipping, and it is probable the port of Wisbeach had proportionably declined, and its trade and shipping diminished: and indeed it looks as if Lynn was then become the more considerable port; for in the 8 E. II. in the year 1314 there were complaints made, of the obstruction those
dams

dams occasioned in the navigation of the ships and vessels, trading from Lynn to Well and Holm, upon which a Commission of inquiry was ordered.

And in the 17 E. II. in the year 1323 the king receiving farther information concerning the obstruction of the water of Wellstream, as the town of Well before mentioned, whereby merchants and others were hindered from passing with their ships, and boats, and other vessels, from the town of Lynn, unto Yokelle, Holm and other places, lying in the Counties of Huntingdon and Norfolk, in such sort as they had formerly used to do, (and as the Commission in 8 E. II.) before specified importeth, another Commission was appointed to make inquiry.

But it does not appear, that any thing in consequence of this Commission was done, or that those Dams were of any considerable service to the channel

channel and out-fall at Wisbeach, it is therefore most probable that the channel from Upwell to Elm was not scoured out, as the jurors represented it ought to be; for it seems those dams, by stopping the fresh waters in their descent towards Lynn, and not having a sufficiently free passage to Wisbeach, overflowed and inundated the Level, for thirty miles in length, and occasioned much damage to the pasture and tillage land, in most of the adjacent counties.

Infomuch that in the 3 E. III. in the year 1328, the jurors presented to the justices itinerant, sitting at Northampton, that whereas the course of the river Nene had antiently been directly from Peterborough, unto Lynn in Norfolk, by which, corn, wool, and other articles, were carried to that haven, and from thence provisions and other necessaries: that about twenty-eight years then past, Walter de Langton, bishop of Coventry and Litchfield, and treasurer to king

I

Edward

Edward the first, (granted father to the then king) did for the draining his manor of Coldham, situate in a fenny soil, by his power and greatness, cause a dam to be made at Upwell, in the said county of Norfolk, with earth and sand, so that no navigable vessels could afterwards pass to and from Lynn, as they had wont to do, to the great damage of the said king, and his people, as well of that county, as of Cambridge, Huntingdon, and Lincolnshires.

And that the same stop of those waters descending to Lynn, did cause the lands, meadows, pastures, and marshes of Borough-fen, and Thorney-fen, with divers others adjoining to be overflowed and drowned, to the damage of the men of that country, three thousand pounds per ann. and upwards. And that Edward Peverell, son and heir to Robert, brother and heir of the said bishop, then holding the said manor, did maintain and continue the said specified dam; but by what authority they knew not.

This

This it seems, brought on some proceedings at law, which litigation occasioned several commissions, and presentations, in which it was alleged, that by reason of the obstruction made to the navigation by those dams, the ships, boats, and vessels, trading from Lynn, to Holm, Yexley, Peterborough, Thorney, and Croyland, directly by the way of Outwell, were obliged to go about by Littleport, and Wellenhee; which in going and coming was fifty miles more, and greatly advanced the price of freight. Besides the drowning of a vast tract of country, and rendering it unprofitable. (see Dugdale, pages 304, and 305.)

The said dam being found to be so obstructive to the navigation of the port of Lynn, and prejudicial to the country, for want of a free passage of the said waters to Wisbeach, or for want of a proper out-fall there, the sheriff of Norfolk had command to pull it up.

And it does not appear, that Wisbeach received much benefit by it, while it was standing,; so that little good was effected by that attempt.

In the 12 E. III, that is, in the year 1337, there was another attempt made to stop the river Nene running to a certain fishing called Levermere, in the town of Well, and belonging to the Abbot of St. Edmundsbury, but they were hindered from carrying it into execution.

After this it does not appear, that any more attempts were made, for the turning of the Nene from Lynn to Wisbeach, but multitudes of presentments and orders were made, for the support and repairs of the banks, and the cleansing and scouring of such sewers, as the imbankments of the original principal rivers obliged them to contrive. Their views in which seldom extended farther than the advantage of those particular tracts and districts, in which they were
more

more particularly interested, and what were more immediately annoyed; and the pursuit of such different schemes produced, multitudes of new cuts and drains, and occasioned disputes and presentments; for it often happened, that after the first making, they were neglected, and suffered to run to decay and come to ruin.

But it seems to appear, that as great inconveniences and annoyances arose from the decay of the out-fall at Wisbeach, so the gradual enlargement and improvement of the channel and out-fall at Lynn, afforded such relief to some parts of the Level, and such great improvements were made therein, that in the days of king Henry the first, great contentions arose between the bishop and abbots in the isle of Ely, about the boundaries of their estates, which created much trouble to decide, (see Dugdale, pages 357. and 358,) where he says, "But what deserves more consideration, is the commodious and flourishing condition of some of the fens, pertaining

13

antiently

antiently to this isle, which occasioned no small dispute between the borderers thereon, concerning the extent of their several bounds: for in king Henry the first's days, I find, that after a long contest between the church of Ely, and the abby of Thorney, about the limits of Wilbeach fen, and Thorney fen, as also of Thorney fen, and Whittlesey fen, there were chosen prudent men, as well clergy as laity, to describe the boundaries of their estates and districts, &c.

But their determinations, it seems, were not satisfactory; for those disputes were continued down to Henry the third's time, and fresh ones arose, between the bishop of Ely, and the abbot of Ramsey, concerning the limits of their fen-lands, which was settled about the year 1256, (40 H. III.)"

The relation thereof, (says Dugdale, page 359) "forasmuch as it so amply manifests, how small a tract all those parts had long before been, and to what



what an height of improvement they were then grown; I shall here from an eminent historian of that time shew.

In the year 1256, (40 H. III.) William, bishop of Ely, and Hugh, abbot of Ramsey, came to an agreement upon a controversy between them, concerning the bounds of their fens, whereof in these our times a wonder happened; for whereas antiently, time out of mind, they were accessible for neither man nor beast, affording only deep mud with sedge and reeds; and possessed by birds (yea much more, by devils, as appears in the life of St. Guthlac; who (finding it a place of horror and great solitude,) began to inhabit there; is now changed into delightful meadows and arable lands: and whatever part does not produce corn or hay, does abundantly bring forth sedge, turt, and other fuel; very useful to the borderers: which occasioned much dispute and contention between those, who were the most antient inhabitants in those parts;

may quarrels and fighting, concerning the bounds of such fruitful lands. For so it happened, that on the feast day of St. Peter, *ad vincula*, two of the canons of the priory of the holy Trinity in London, disputing about their limits, rose to such high words, as contracted such an implacable hatred between them; so that studying revenge, the one took an opportunity to murder the other.

To which relation Dugdale adds this remark, in what manner, and by whom, these fens were drained, I find not; but it could not be without the clearing of these antient out-falls of the several rivers, which both before, and since, did overflow the whole Level; leaving therefore the discovery thereof to a farther scrutiny, I shall briefly point out such commissions &c. &c. thus far Dugdale.

This I have ventured to impute to the improvement of the out-fall at Lynn,
by

by the turning of the Ouze at Littleport, and the Nene at Salter's-lode, into that channel, which though, at first, it must have been the occasion of the original inundating and surrounding the principal part of the isle of Ely, by bringing into it more water than that channel, in its then contracted state, could carry off to sea; yet, when that channel became enlarged, and its out-fall made deep and capacious, the waters would then be readily carried off that way to the sea; the country would be relieved, and therefore might be greatly improved.

For it appears, from what has been before said, that by the repeated complaints of the inhabitants of Marsh-land, of the damage sustained, by the force of the waters of the Ouze and Nene, running that way, it was thought necessary (in Edward the First's time, about the year 1292, thirty-six years after the time before mentioned) to attempt to turn the Nene into its old course, by
dams

dams made at Upwell and Outwell, for that purpose: And by a petition presented by people of Marsh-land as we have before mentioned, it appears, that in the year 1342, in the time of Edward the third, the channel of the river going to Lynn, was then got to be a whole mile in breadth.

And about the 11th of E. III. 1336, it was presented, that within the compass of sixty years past, in the parish of Tilney, one church, with the parsonage, a mansion-house, and twenty messuages, were ruined, and lost by the breaking in of the sea-water.

And so high up as (16 E. I.) in the 1287, which was but thirty one years before the time just now mentioned, in which the upper part of the Level was in the flourishing condition before described, there was a commission constituted to inquire of certain breaches in the banks of Robert de Seals, in the Haw of Irlington, in the province of
Marsh-land,

Marsh-land, which seems to have been the breaches which occasioned the damages above mentioned, for the manor-house, and the twenty messuages there mentioned to be lost, belonged to the said Robert de Seals.

And it appears by a presentment, made to certain commissioners, appointed for the repairs of the banks, drains, and sewers, lying between Wiggshall, Terrington, and Lynn Episcopi: In 2 E. III. (in the year 1327,) that the jurors thought it necessary for the preservation of the banks of those parts, that certain keys and shores should be made, for their security against the force of the waters.

From all which circumstances, it may be concluded, that the channel at Lynn in the time that the Fens were so flourishing, was become spacious and deep, and a good outfall for the waters both of the Ouze and Nene. And
therefore

therefore the upper parts of the Level must be greatly relieved thereby.

And another circumstance that might contribute to the better draining, and the great improvement of the upper part of the Level, especially those contiguous to the river Nene, was, that for some years, before the time above mentioned, either part of the river between Well and Littleport was left unimbanked, or the banks were so decayed and worn down, as before said, so that the waters above, staid not long upon the lands, but flowed down upon the province of Marshland, in such a manner, as to render a great part of it unprofitable; and for which reason, the inhabitants were at first obliged to make the old, and afterwards the new Podike; after the making of which the landfloods meeting a stop in their progress into that province, spread themselves again over the upper part of the Level, and overflowing and surrounding it, render

der it again desolate and unprofitable; the drains and sewers antiently made for leading the waters into the old course of the river, being then become useless and unservicable.

Of the flourishing condition of the fens, William of Malmesbury (who seems to have wrote in the time of Henry II.) has spoken; in his description of Thorney; but that I conceive is not the state mentioned in H. III. time, which is described as a new and marvellous work, affected just at that time or thereabouts; but the state he speaks of must have been the original, antient, and pristine state of that lordship, otherwise the trees, therein mentioned, could not have arrived at such maturity.

He having before spoken of the other parts of the Isle, and then coming to Thorney saith thus, "Thorney, though last mentioned, and less in circuit, hath the priority in fame, represented

represented a very paradise, for that in pleasure and delight, it resembles heaven itself; the very marshes abounding with trees, whose length without knots do emulate the stars.

The plain there is as level as the sea, which with the flourishing of the grass allureth the eye, and so smooth that there is nothing to hinder him that runs through it.

Neither is there any waste place in it, for in some parts thereof there are apple trees, in others vines, which either spread upon the ground, or are raised up with poles.

A mutual strife there is between Nature and Art; so that what the one produces not, the other supplies; What shall I say of the beautiful buildings, which 'tis so wonderful to see the ground amidst these fens to bear.

If such was the state of this lordship in the time of this author's writing,

ing, it is plain by the discription of the trees, and its other products, that it must have then continued in the original state, which it had been in before the Level was at first inundated and surrounded, and before it became that horrible lake and fen, which it is described to have been in St. Guthlac's time.

But to leave this digression; I shall return to the river Nene, which as we have before observed, after the taking up of the dams at Upwell and Outwell, in the time of king Edward the third, was left as it were to its course, and nothing more than common seems to have been done to the river of Wisbeach, till about the time of H. VI. when a sessions of sewers was called at Wisbeach, by John Colvile, Gilbert Haltoft, and others, (16 H. VI.) which was called Haltoft's commission, as it seems to have been procured at his intercession: at which time, it being presented, that a funnel called Massingham's funnel, lying under the river of Elm,

Elm, and discharging its water into the river of Wisbeach, at a place called Bevis; by reason that the said river had for many years past, been so filled up with silt and sand, brought by the sea tides, that it could have no passage there.

It was ordered, that the water passing through the said pipe, should by means of other certain drains, be led to a funnel then lying under the river of Wisbeach called Coldham-pipe, and so to a flood-gate in Leverington, called Dreugard, and thence to sea.

And it being at that time also presented, that John Everard esq; William Caus esq; and John Green, had straightened the common river of Wisbeach, with nets and other engines therein placed, and that the abbot of Dereham had one kidle in the common sewer of Wisbeach, called Plants-were, as also another kidle in the same sewer, &c.

It

It was ordered and decreed, that all the sewers belonging to every hamlet of Wisbeach, from the fen-bank to the sea-banks, should be well scoured and cleansed, at certain times of the year, by those who antiently used to scour the same.

And that all Kidles, Slamps, Dams and other engines in the river of Wisbeach whereby the water was in any sort straightened or stopped, should be removed and taken away; and that no man thenceforth should make any Slamps, Dams, Kidles or other engines in the said river from Guyhirn to the sea upon penalty of five pounds, to be paid to the bishop of Ely; and that there should be a Guardian appointed to oversee, open, and shut, the four Gotes of Wisbeach, Leverington, Newton, and Tid St. Giles's.

And that the river of Wisbeach should be scoured and enlarged in all places defective, from Guyhirn to
 K the

the sea, as need required, by all the Land-holders within the said hundred of Wisbeach, each man according to the proportion of his holding.

And that the Wardike between every town, should be raised higher, and well repaired and maintained by those to whom they belonged.

And in the year following, there were presentments made to the said gentlemen, for the cleansing and scouring the south eau, antiently called the old eau, whereby the waters of Nene and Welland ought to pass, by Noman's-land, in Croyland, into Dowfdale in the same town, and thence by South Eau-dike, unto the east end of the said Throkenhold in Leverington near the Cross, and thence into the sewer called Fenditch, in Leverington and Wisbeach, unto the river of Wisbeach, at Guy-hirn.

And at the same time, presentment was likewise made, for the scouring of
the

the river Nene, from Thorney-bar, and from thence to Noman's-land, there to join the waters of Welland in their course to Wisbeach afore-said.

And also to cleanse and scour out the other part of the Nene from Peterborough-bridge, to Wodeshed, in Wy's-lesey, thence to Wy's-lesey, and thence by Wittlesea, to Wardscote, in Whittlesea, and thence to the great river of Wisbeach.

The presentations, containing the most material matter relating to the river Nene, and Wisbeach river, from the time of Edward the third, to the time of Henry the sixth, being about the space of ninety-eight years, I have been the more particular in collecting, for two reasons, viz. first, as they gave some description of the course and state of the rivers ; and as the plan, on which these presentments seem be^d founded, must, if the works had been properly executed, have greatly contributed to

the improvement and preservation of the then decayed river of Wisbeach: As by them a considerable part of the Ouze and Nene, must have been turned into the river at Wisbeach, as the West-water, which was a very considerable part of the Ouze, joining the Nene at Great-crofs, would be carried with it through Plant-water, into Wisbeach river at Guyhirn, where meeting the other branch of the Nene with the Welland, brought there by the old south eau, would constitute a strong body of water for maintaining the channel from thence to the sea.

And had those waters passed wholly that way, it must have been a great means of restoring the out-fall: But it seems, long before that time, and I suppose, as soon as the channel at Lynn begun to be enlarged, by turning the great Ouze into it, and to give relief to the south part of the Level, it was, that the river Nene was turned into it, by the way of Salter's-lode, for in the 11
E. III.

E. III. it was presented as a thing formerly done, viz. That the stream of the water called Wellenhee, which had been wont to run towards the sea, under the sea-bank of Wallfoken, where it had made so great a depth and hollownes, that the lands in that town, had a sufficient evacuation of their waters to the sea thereby, being at the suit of the inhabitants of the counties of Northampton, Cambridge, Huntingdon, and Lincoln, made to the king, and judgment of his court, diverted towards Wiggshall and Well-dam, the sands were grown to that height in those channels, wherein it had formerly passed, that the waters of the said town of Wallfoken, could not drain any longer that way; by reason of which, no less than three hundred acres of winter corn, were in the seventh year of king Edward III. overflowed and drowned; and the three following years the like.

This dividing and diverting of the waters, so lessened their force and effi-

cacy, and the quantity of the ebbs being also so much diminished, by depriving the tides of their antient receptacles, there was not power and force sufficient to grind out the channel, or preserve the out-fall; especially as by the largeness of the out-fall below, the waters flowed into the rivers, and banks were out of repair, without returning immediately to sea, and by the decay of the banks, the drains and sewers would be filled up with soil and mud, and the waters hindered from getting through them into the main river, and it seems by such neglects, the channel became so obstructed, and the lands so surrounded, that in the year 1490, in 4 H. VII. and about sixty-two years after the presentations made by virtue of Haltoft's commission, who in the 6 H. VI. resided about Well, and was one of the barons of the Exchequer.

John Morton bishop of Ely, and lord chancellor of England, to avoid the many crooked passages in the river
Nene,

Nene, between Peterborough and the sea, (by the way drowning many thousand acres) out of the whole ground made a new river, now called Morton's Leam, or the new Leam, forty feet wide and fourteen deep, from Stand-ground steafe within about a mile of Peterborough to Guyhirn, in a hamlet in Wisbeach parish, being in length about fourteen miles. For, finding that without a great head of fresh waters to scour both the river and the out-fall, all would be lost, he took a part of Hercules's labour upon him, and by making the above-said new cut, and setting down a sluice at Stand-ground aforesaid, to turn the waters of the Nene through it, down to their antient out-fall at Wisbeach, and by bringing in a great abundance of fresh water, by divers courses, viz. the river of Great Cross, or Plant-water, from the united branches of the Ouze and Nene, descending by Benwick; and by the Nene and Welland, through the south eau, and principally by the new cut aforesaid, all uniting in

one body at Guyhirn, he thought to recover and maintain the river and out-fall at Wisbeach, and relieve that part of the Level, and to make the matter compleat, it seems continued through Wisbeach, for the more speedy delivery of the waters, attempting to cut through the sea-dike. (see Dugdale, page 372)

At Bevy's-crofs, and again at Eastfield-end, and nigh the Horfe-shoe in Leverington, (which banks were in less than thirty years ordered by commission to be maintained, from the first slope of the bank fifty feet high) and so made a new out-fall from Wisbeach to the four Gotes, and thence to sea.

This certainly was an undertaking adopted upon very judicious principles; as by that means the whole body of that branch of the Nene was intercepted at Stand-ground, which being assisted by the other branch, united with the Welland, as also with a considerable branch of the Ouze, coming from Great-crofs, through Plant-water at Guyhirn, and

and being led by a lower out-fall to sea, carried with it a great prospect of success, and seems to have effected some very considerable things at the first; for, says our author, then were Wisbeach fens by this doing made good sheep pastures; then was the fall of the waters in Wisbeach so great, as no man would venture under the bridge with a boat, but by veering through. (see the State of the Navigation, published by Mr. Kinderly, page 68)

But I am something doubtful, whether this scheme was ever compleatly executed, as I find it was presented in the 20 H. VIII, anno, 1528, about thirty years afterwards, that the river Nene having its rise above Northampton, and coming to Peterborough-bridge, and thence to Noman's-land, there entering into the south eau, which is distant from Peterborough about fourteen miles by estimation: The said river ought to be scoured and cleansed by the abbots of Peterborough and Thorney; but was not.

At

At which time it was also presented that the waters of the river Nene, which it seems was called the great Eau, used to be conveyed to the north sea at Wisbeach, from Great Cross to March, and the new leam, the said river at Great Cross being not above ten miles distant from Wisbeach, and from March to Wisbeach not above six miles and an half; and by reason of the decay of the said sewers being forced to take in a manner its fall and whole course contrary-wise from its natural and most ready fall at Wisbeach in form aforesaid, is constrained unto the said chapel in Upwell aforesaid, called Shrewsfnefs point, where it divides into two branches, the one going from the said point South-Eastward, called the South branch, by Upwell and Welney to Littleport, into the Ouze by Littleport Chair, and by Lynn to sea, in a course of four miles in length.

And the other called the North branch proceeding from the beforementioned
point

point to Outwell, and by North delf and Salters lode into the said river, and so by Lynn to sea, in course of twenty eight miles in length, and from the said Leam in March aforesaid, unto the north seas at King's Lynn, by the said south branch is forty eight miles, and by the said north branch twenty eight miles.

The decay of which several sewers, with the rivers, lodes and drains from them extending unto the said town of Wisbeach, they say are the chief and special occasions of the drowning eight thousand acres of marsh and pasture grounds, and damaging 1600 acres of infields in the towns of Upwell and Outwell.

This being only about thirty years after, makes me greatly doubt, whether upon the making the new leam by bishop Morton, the waters were so collected, as in the account before given of that undertaking is described.

In

In the 13 Eliz. it was presented that the sea banks beginning at Tidgote in Tid St. Giles, and leading to the Horse shoe, being in great decay, should be made in height twenty feet above the salt marsh, and in breadth six feet; and from the Horse shoe to Crab marsh gate and from thence to the sluice of Wisbeach, of the same breadth and height.

And it was also presented that the old Eau, alias Sank Eau should be cleansed from Clow's crosses to the North west corner of Throkenhold.

And that the sewer called the new leam viz. Morton's leam from Khar lake to Standground, being so grown up that no water can pass in dry years, to the utter decay of Wisbeach river, be diked thirty feet wide, and six foot deep.

And that the great river of Wisbeach being much decayed, raised, and filted
up,

up, by reason of the flowing and ebbing of the water, for the preservation therefore of the whole hundred, that a sluice be made in the said river at the Horse-shoe in Leverington, at the charge of all the hundred of Wisbeach, or any other place that shall take benefit by it, and to be made in breadth sixty feet, and in depth ten feet, from Guyhirn to the sea. (Dugdale, page 342) By this I suppose, it was meant, that the river was to be cleansed out at the same time, to the dimensions above specified.

And it was also presented, that there should be two great rivers of Wisbeach, the one to begin at Guyhirn-cross, and to extend to Kentoun's-corner; the other at Tower-house, and to extend unto Kekyll's-mill, which rivers to be twenty feet wide each, and six feet deep, to be done by the whole hundred of Wisbeach.

And it was likewise presented, that all the lands in Wisbeach, on the North
side

side of the river ought to cleanse the high lode of Wisbeach, from the four Gotes, to Eau-dike bridge in Leverington, in breadth twelve feet, and in depth four; and repair the bridges in the town of Newton. (see Dugdale, p. 342)

By these presentations, which were made about eighty years after the cutting of the new leam by bishop Morton, it appears to be so grown up, that in dry years no water could pass; by reason of which the great river of Wisbeach was grown up and fallen into decay.

One would have imagined, that so great a work, as that of bishop Morton's, and which at first seemed to produce such considerable effects, must have so recovered and maintained the channel and out-fall, as intirely to have kept it from decaying and choaking up; it must be therefore worthy of consideration, what the failure may reasonably be supposed to have been owing to.

First

First then, I have intimated a suspicion, that the waters of the Nene and Welland were let down by the south eau to Guyhirn, the river not being scoured out, as was intended, according to the presentment made the 20 H. VIII. in the year 1528, in which it is said, it was not done. Nor does it appear, that that branch of the Ouze called the West-water; was effectually brought from Great-crofs, to join the leam through Plant-water at Guyhirn, as seems by the bishop's design to have been proposed.

For by another presentment, made at the time above mentioned, it is said that the water of the river Nene, which was then called the Great Eau, was by the decay of the river at Great-crofs, and other sewers leading to the new leam, forced to take in a manner its fall and whole course contrary to the natural course, and ready fall at Wisbeach, and was constrained to go to a place called Shrewsfness in Upwell, from whence dividing into two different branches by
different

different courses, it took its way down to Lynn, running many miles more about, as has been before mentioned.

As this seems probable to have been the case, the new leam must in course have been rendered less effectual for the purposes intended, than it otherwise might have been; and if we consider the detriment and hurt done, by taking great quantities of water from it in summer-time and dry seasons, as likewise what might be the effect, of too frequently opening and running the water through the sluice at Stand-ground, in such like season, when it was most wanted that way, all these things put together might be a great reason of the failure in the purposes intended, as well as one great cause of its so soon growing up.

Secondly, there seems to have been two considerable errors in the construction of this new channel.

First,

First, it was not capacious enough to carry off so large a body of water, as was brought down by the Nene to Peterborough, in the time of the land-floods, being only forty feet in breadth, for which reason it is probable the banks were set at so great a distance, for the water to roam and spread itself, after it rose out of the channel of the river, which as it was made of so small a depth, viz. only four feet, it would very soon do, and being so expanded, its velocity would be greatly abated, to what it would have had in a properly confined and more deep channel, by which means a great part of its efficacy, in scouring was lost.

And secondly, the said channel being made of so small a depth, in a dry season there must have been a great body of water stopped, and dammed up at Peterborough for want of a channel sufficiently deep to carry it down to sea; much in the same manner as it is at present, which the channel being intirely

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deprived of, as well as robbed by the means before mentioned, must be very liable to grow up and be choked; and it seems to have been apprehended, that the small depth of that new channel was a great defect therein, as it was presented in 13 Eliz. that it ought to be made two feet deeper.

Having pointed out several of the reasons or causes, which concurred in the failure of this expensive and well designed undertaking; I shall proceed to inquire into such succeeding operations, as have relation, or were intended for the improvement of the channel, or the recovery of the out-fall at Wisbeach; for which purpose there seems to have been more intended, than was in fact carried into execution.

In the 18 of Eliz. it was presented, that as the great river was ordered to be scoured, so Elm eau ought to be in like sort dug.

That these works were not carried in-
to

to execution regularly, and in immediate consequence of the presentments appears, by the South eau, or old eau, leading from Clows-cross to Guyhirn, which was presented in the 13th of Eliz. was again presented in the 39th of the same reign, and ordered to be cleansed, as before.

As in this reign, there does not appear to have been any thing more considerable done towards the recovery of the channel and out-fall, so in the next, it seems, they begun to take into consideration the small advantages accruing from the great trouble and expences of the several partial schemes, contrived for relieving first one and then another particular tract, and part of the Great Level; all which proved as it were temporary expedients; and to think of forming some more extensive plan, which might effect the recovery and improvement of the whole Level; this however was not entered upon at once; but was proceeded in, by some small and partial undertak-

ings, attempted in the preceding reign. One of which intended was, to drain the fens by Clows-crofs to fea, for which an inquiry was to be made into feveral particulars relating thereto.

As, the price of the work; the quantity of the ground to be cut through, both common and feveral.

Who were to be chargable with the expences; what would be the advantages or difadvantages; to caufe a level to be taken, &c.

The answers to which were: That, there was a fufficient defcent or fall, between Clow's-crofs and the fea, and that the moft convenient place for conducting the drain, was from the Wind-mill corner, on the weft fide of this dike called Willow-dike, unto a place there called Gannock, and from thence through the Queen's-lands, and the lands of Henry Adams, efq; of Tid St. Mary's in the county of Lincoln, unto the
eau

eau between Lincoln and Cambridge, at Grayn's-hill, and so following the course of the old drain to Shire-gate. (see Dugdale, page 376)

And that it would be very profitable and beneficial to all the inhabitants and dwellers near to the said grounds or fens above South eau bank. And should be made twenty-eight feet in breadth, and six feet in depth, and that some part might be done for ten, and other parts for fifteen shillings a perch, of twenty feet to the perch; which would amount to the sum of one thousand, and forty-five pounds, besides building of Clows, and other extraordinary charges, which they judged would cost one hundred pounds.

But, says Dugdale, what was accomplished therein I am yet to learn; sure I am, that it would have fallen far short of what was aimed at; there being nothing more evident, than that without a general draining, all these particular

L 3 attempts

attempts how chargeable soever, would be of little moment; witness that fair channel made by John Morton, bishop of Ely, in king Henry the Seventh's time, called Morton's Leam, which expence, had it been once bestowed upon the main work, might have gone far towards the accomplishment of a general exsiccation of this whole fenny tract.

And so much were men's thoughts turned upon a general draining; that it seems there was an act made in the 44th of Eliz. empowering the proprietors and commissioners of drowned and surrounded lands and fens, to contract and bargain with undertakers for draining their several properties, to their great interest therein.

But in the succeeding reign of James the First, this work was farther pursued; and in 1605 a general draining was attempted, by virtue of the king's letters to the commissioners of sewers for the isle of Ely, and the counties of Norfolk,
Suffolk,

Suffolk, Cambridge, Huntingdon, Northampton, and Lincoln.

In consequence of this, directions were given to Mr. Richard Atkins of Outwell, (a person whose observations in these fenny grounds were very notable) to make search with an auger of eleven feet long, on the skirts of the new Leam, from Guyhirn to Stand-ground stase, to find the soil thereof at eight feet deep: which work he begun on the second of April, 1605, and on the North side at five different places found it all moor, and at a mile and a half, trees, at three places, the same, and in the leam, and at one more place on the North side, the same: In Knar Lake, at eleven feet deep, moor; on the South side against Knar lake, the same; in the Leam, and on the North side in two other places, the same; and at one place in the Leam, moor to nine feet deep.

By Lord's dike-end, black moor, mixed with earth; in the Leam and on the North side, the like.

On the South side Lipny-holl, against the hill, mixed earth; in the Leam and on the North side, the like.

Against Castree, mixed moor; above ditto, and Basually hill, the same.

At Stonehill-doles against Calve's-crofs South, Bassa, gravel, North, all moor.

Between the Leam and the lake against the mills, all moor.

Between Greathill and Stonehill gravel, moor mixed,

Between Stonehill gravel, and Stonehill Lotts, all clay above, and gravel at two feet eight inches depth.

More westward in the river, gravel and silt at four feet.

On the North side at North Eau gravel, the like.

At

At North Long-lots, all clay above.

By Bradley-fen, clay and mixed earth above, near three feet.

By Bradley-fen, to the Leam's-end, such like above, but rank moor all the way below.

The like searches were also made from Erith-bridge to Plawlis-wear.

At Erith-bridge, within sixty poles thereof, at the first ham, at two feet, and two feet one-half, clay; but under the same at eight and nine feet and upwards, is all red moor.

After this search, the lords of the privy council, by their letters recommended it to the commissioners to satisfy all objections, which might be raised against such an undertaking. After the receipt of which letters, they met at Huntingdon, and after a long debate, and answering all objections, returned
an

an answer to the said letters, that it was their opinion, the work of draining was feasible, and without any peril to any haven or country; and they esteemed it a most noble and beneficial undertaking, to the counties interested, that ever was attempted in those days. referring more particular relations concerning it, to Mr. Hunt, and Mr. Tolnall, two gentlemen appointed by king James, to take a view of the said fens, and treat with any lords and commoners as they might, concerning the premises.

The commissioners were,

Oliver Cromwell, Robert Bevill, John Cutts, John Cotton, Robert Wingfield, Robert Cotton, Simeon Steward, Richard Cox, Henry Spelman, Anthony Forest, Thomas Lambert, Robert Cromwell, Anthony Ireby, Thomas Ogle, Christopher Hodson, William Sturmin, John Frencham, and William Marshall.

And in June the same year, viz. 1605, a view of the whole Level was taken by
Robert

Robert Bevill, Sir Robert Wingfield, Sir John Gamblayn, Sir Richard Cox and Sir Anthony Forester, knights; Christopher Hodson, and Mathew Robinson esqrs; And amongst other things made and certified by them, it was found, that from Peterborough-bridge, to the old Eau, and Catts-water, those antient sewers were so grown up with earth and weeds, that it served neither for passage with boats nor draining, and so has been a long time, which ought and wont to be used for the ordinary passage to and from Spalding, and other places in Holland to Peterborough.

At Standground, they found the river sufficient for breadth and depth, but from thence to Guyhirn wonderful defects both in breadth and depth.

And from thence to Wisbeach, and to the sea they found the like defects.

After this they proceeded by Elm river to Friday-bridge, and by Bishop's-
dike

dike to Lake-bridge, and thence by Well river to Shrewsfnefs, where the river Nene passing through the moors, has but fix miles to Salter's-lode, to pafs by Well; but by reason of the quarring of the faid channel, a great part thereof runs from Shrewsfnefs to Salter's-lode, by Wellney, Littleport-chair, and Southery ferry, which is twenty-eight miles.

To remedy which, Mr. Hunt propofed, that a new river eighty feet wide and eight feet deep, be made from March-river at the Ham, crofs Marmound, through Nottemore to fall into Well river, near London-lode; between Shrewsfnefs and Forwear they found a place called the Ham, not above two feet deep.

About four miles from Shrewsfnefs, is Elm-learn, which is a fever going from March-river to Friday-bridge, through Elm-river to Wilbeach, which they alfo found fited up.

From thence they went to March-learn

team about a mile and a half short of March-bridge, which they likewise found so decayed, as to hinder the navigation from St. Ives to Wisbeach, and the draining of all the grounds betwixt Chatteris-ferry and March-river. And at March-bridge, on either side they found divers gravels, which stopped the course of the river.

From thence they proceeded to Great-crofs, about three miles distant, and through Ramsey, Ugg, and Wittleseamers to Peterborough,

And from Peterborough through Yaxley and Ramsey lodes, along the skirt of the upland: Thence to Erith, where Mr. Hunt desired a new river might be made, from the first corner of the West-water (beneath the bridge) to begin at Middlemore-fen, near to the severals, and to go line-right to Wellenhey-river nigh Sprall-wear, and thence line-right to the fall into Ouze, at the end of Maid-lode, or some apt place
between

between that and Salter's-lode, which river or rivers to contain in breadth, one hundred and twenty feet, and in depth eight feet: And for the preservation of the navigation to and from St. Ives to Cambridge and Lynn, as also to Wisbeach, he thinks it necessary that several other sluices be made, viz. one in the Ouze near Hermitage; one in the West-water, near the New river, to stop the water from running to Benwick, and for navigation, and draining of Huntingdon-fen-ground; between that and the up-land grounds, and other necessary uses; and so many sluices at the ends, as the said river shall be divided into parts; which he thinks to make into three rivers of forty feet each.

From Erith they went to Over, Aldrich causey, Huddenhams, Grantysfen, and so Ely. In Ely town they found the water was but fourteen inches deep and upon the hards eighteen inches, and in some places two feet.

From

From thence they passed by water to Southery and Prick-willow, where Mil-denhall river falls into the Ouze; and between Ely and Littleport-chair, they observed the said river of Ouze was so crooked, that it was thought necessary a new river should be made from Erith-bridge, through Sutton Beryal and West-more-fen, to Wellenhey river, and thence through certain fens in Norfolk, into the Ouze about Maid-lode; and it was thought by them, that without this was done, the fens could never be drained.

From thence they went to Rébbech, where Brandon river (alias Ouze parva) falls into the Ouze near Priest-houses.

Thence to Sotheay, Modney and to Helgay-bridge: Thence to Fordham: Thence to Salters-lode; where the Nene falls into the Ouze, which is a very great descent, viz. ten feet from the foil to the fens to low water mark; besides the natural descent of the fen-grounds

grounds, from the up-lands of Huntingdonshire thither : From thence they went to Wisbeach ; from Wisbeach they went to the Tower-house ; and thence to Hobbs-house ; where they observed that Plant-water, which comes out of the Nene at Great-crofs to the said Hobbs-house, and so to Wisbeach, does now run from Hobbs-house by Hunter's-stones, through Hobbs-dike into March river.

From thence they went to March and Doddington ; and between Doddington and Chatteris observed a small lode, Besselling's-lode, which runs through a low Marsh-fen.

Thence they went to Chatteris town, where there is a sewer called Chatteris-lead, beginning from the West-water at Chatteris ferry, to Doddington-wides : Thence they went to Messhall, and observed Messhall-lode, which runs from Sutton-lode : From thence they went by water to Cambridge, and in their way

way took notice that Harrymere gravel was a great means of the overflowing of the Grant.

As also of Burwell-lode, Swaffham-lode, all which fall into the Grant.

Upon this view, Mr. Hunt, who was the artist for the draining, represented to the said commissioners, what cuts, banks, sluices, clows &c. would in his judgment be farther necessary, in order to perfecting this work; but in regard of the shortness of the time, declined giving an estimate of the charge.

And so attentive was the king to this work, that he sent his letters to the commissioners bearing date the 24th of the same month, advising them to undertake it speedily: and for the better expediting thereof, he employed lord chief justice Popham, to take pains therein. And upon the 13th day of July, William Hayward, gent. surveyor, delivered on oath to the commissioners at

M

Wisbeach,

Wisbeach, an account of the number of acres of the several and common fens, in each particular district, amounting to 307,242 acres. (see Dugdale, page 382)

These surveys being as it were the foundation of the future undertakings, I thought it might not be improper to take them as it were in their way, and give them at large, especially as the then state of the several rivers and drains were particularly taken notice of therein: by which it appears, that the main channel and river at Wisbeach, and the rivers, drains and sewers leading thereto, were all, except the river at Peterborough, then greatly grown up, choked, and stopped; and the country greatly annoyed and surrounded, and the trade and navigation to and from Wisbeach and Peterborough interrupted thereby.

On the other hand it appears, that the channel of the Ouse, leading to Lynn, was

was greatly improved, and become so deep that the low water mark at Salter's-lode therein, was at that time ten feet lower than the soil of the fens, exclusive of the natural fall thereof, from the up-lands to that place; and the only stoppages, which they observed, were at the town of Ely, where they met with some obstruction by a gravel, which occasioned the overflowing of the river Grant, Burrel and Swaffham lodes.

From the depth of the channel, and the great descent that depth made from the up-lands, it is reasonable to conclude, that all the South level, and the fens bordering upon that river, must at that time have been in a fruitful and flourishing condition, except so far as they might be affected by the stoppages before mentioned: and that this was the case appears, that in the survey then taken, no remarks were made of any over-flowing or annoyance in that part of the Level, but those before specified.

M 2

After

After the above mentioned survey was delivered in, Sir John Popham, lord Chief Justice, Sir Thomas Fleming, Chief Baron of the Exchequer, Sir William Rumney, alderman, and John Eldred, citizen, and cloth-worker of London, were appointed undertakers for the draining of the fens from the course of the Ouze, from Erith to Salter's-lode to Delfing.

For which undertaking, they were to have in recompence, 130,000 acres, of the worst sort of the land, and were to compleat the drainage in seven years.

The principal things proposed to be done were.

The conveyance of the river Ouze, or the greatest part thereof, from or near Erith, to some place between Salter's-lode and Maiden-lode in Well, by a new river to be made thirty feet wide, and eight feet deep; and the banks to be made thirty feet wide at the bottom,
and

and seven feet in height, and to be set at the distance of thirty poles from each other.

And such a passage to be made for the river Nene, from Peterborough to Wisbeach.

And the like for the river Welland, from Waldram hall, till it meets the Glen.

And to make Land-caus from Erith to Standground, and from thence to Waldram hall, to defend the ground within them, and between the said new passage of Ouze and Welland, from the land-floods.

A new drain to be made from Salter's lode to the Ham in March river, to carry away the waters which may fall into the said Land-caus.

That a new bank be made from Erith bridge to Ely, to defend the
M 3 grounds

grounds between that and the said new passages from the over-flowing of the Ouze.

To put a navigable Sluice at Salter's lode.

And to dike and inlarge Well creek to London lode; and from thence through Neatmore to Waddingflow; and from thence over the river of Wellenhee to or near the Ham at March; and to set down a sluice, and make a bridge at Waddingflow, &c. &c.

By these designs it appears, that their intentions were more for the scouring, than draining of the South Level, as not standing so much in need.

And in a little time after, the Inhabitants of divers Fen towns, in the Isle of Ely, in the counties of Cambridge and Suffolk, petitioned the king,

king, to be excluded out of the intended act of parliament, wherein a portion of the said Fen grounds were to be allowed to the undertakers in the draining, for their charges in that work; by reason their lands were seldom surrounded; and therefore they should receive no benefit from it.

The works which were immediately entered upon, were the river passing through Neatmere, which was begun August, 8th 1605, by Mr. HUNT, and Mr. ATKINS, and carried from the North east end of the New podike to Upwell town's end, and was finished and opened the 21st of December following.

This drain is now called Popham's Eau: it seems a bill was drawn up to be presented to parliament, but it does not appear, that an act was obtained in consequence of it.

But the same year an act was obtained,

tained, for a particular drainage of six thousand acres, encompassed with a bank, called the ring of Walderson and Coldham.

And at a sessions of sewers, held at Ely 26th July, 1608, (6 J. 1.) it was presented, that the river of Well from Salter's lode to North delph, and upwards, was in great decay; and that several other drains at and about Well and Upwell, and some leading to Littleport were also in decay; and that Popham's Eau might be made a perfect drain.

After this, it seems, several vexatious suits were entered into against the commissioners of sewers; which greatly obstructed the works of draining.

But it seems the Lords of the council ordered letters to be written to the Commissioners to proceed in their Commissions, and several orders were made by the Lords of the council,



cil, in the year 1617, for the carrying on the general work; one of which was, that a sluice should be set down at the Outfall of Wisbeach river into the sea.

That the river of Wisbeach and all the branches of the Nene, and Westwater, should be cleansed and scoured in breadth and depth, as much as by antient record it shall appear to have been.

That the river Welland be scoured from the Out-fall to Waldram hall.

That the river South Eau be scoured from Croyland to Guyhirn.

And at a sessions of sewers, held the same year at Huntingdon, besides fouring out of the South Eau and the river of Wisbeach to its mouth, as aforefaid, it was ordered, that Morton's leam should be scoured out from Guyhirn to Mid-fen-tree.

And

And that the old Eau from Claylake to Middle house and thence to Thorney crosse be in like manner scoured: with many other laws and orders too tedious to enumerate.

But it appears, by letters sent from the lords of the council to the commissioners, intimating that the river Wisbeach had been before ditched and enlarged from forty to sixty feet wide, and enforcing the putting down a sluice at the Horfe-shoe, and also the making the river from thence to Guyhirn sixty feet wide.

Accordingly it was ordered, at a session of sewers following, that a strong and sufficient sluice of stone and brick should be set up at the Horfe-shoe, beneath Wisbeach.

But the commissioners meeting with difficulties, and disputes arising among themselves; upon the 19th of June, 1618, (16 J. I.) presented a petition to the lords of the privy council.

Shewing

Shewing that sundry sessions had been held by them since his Majesty's commission for draining was begun, and that through the variety of opinions among the said commissioners, nothing had been effected; but instead thereof much charges lost, and that many parts did thereby suffer, and undergo great danger; therefore desired that one of the clerks of the council might be sent down, to be present at a session of sewers to be held at Peterborough on the last day of that month, June.

Upon which petition it was ordered by the said lords of the privy council, that Sir Clement Edmonds should meet the said commissioners at Huntingdon; which he accordingly did, upon the 12th of August next ensuing.

And a view of the rivers &c. was ordered to be taken by him, and his Report to be made thereupon; and
three

three commissioners of every county adjacent were appointed to attend him therein; and after the said view was taken, the said Sir Clement Edmonds made a Report to the lords of the privy council.

The river Ouze, coming by the towns of Bedford, Huntingdon, and St. Ives, and so passing down to its outfall at Lynn, is a goodly, fair river throughout, and from below Ely, runs with such a current, that it is absolutely the best sewer of all that country.

And along by the river side it is a very rich soil, both in Cambridgeshire and the isle, well inhabited; and not otherwise troubled with water but in winter, and in time of floods, which would not have happened probably, but for weeds, wears, and hards, in the river, which obstruct the passage of the waters.

For the outfall of the river Ouze is ample and great, and gives large passage
for

for the fresh waters descending from the inland counties.

But then also for the sea, which cometh in with such a tide, especially if a northerly wind blow, and meets with a land-flood, that divers towns in Marshland are in danger of being overflowed and surrounded, and therefore by their petition desired that the haven might be straitened in some places near Lynn, to keep out the sea; alleging that the said haven had in the memory of man, been narrower and shallower than now it is, being of late grown to that breadth and depth, by the great fall of the fresh waters, that had left their antient channels to follow that stream. (see Badeslade's history, page 11)

By the said Sir Clement Edmonds, was also given in to the board of commissioners afore said, a certificate, containing a particular account of the state of the several rivers, as they appeared at that view; in which the following observations were made, viz.

That

That the river of Ouze in time of floods, had in former times several flakers or by-sewers, to receive part of the water with which it was over-charged ; whereof the West-water at Erith-bridge was one, which now, for want of cleansing, falls into the Ouze ; whereas it, should pass from it.

That the said river was, from Huntingdon to the high-bridge at Ely, much choked with weeds, and stopped with wears, and made shallow by gravel and fords, called hards.

That the haven of Lynn was, through the violence of the tide, and the great fall of fresh waters, grown much wider than it had been, to the endangering of Marshland.

That the river of Nene, is also much stopped and choked up, so that it passes not out totally at Wisbeach, which is its proper outfall ; and that below Wisbeach, it was found near the out-fall

fix

six feet or more higher in the bottom, than it had been formerly; so that whereas the inland waters at Guyhirn, which used to have five feet fall were not only stopped, but the river fell back upon them. Upon which a law of sewers was made by the commissioners for the amendment of the same.

That a sluice made upon that river formerly to the great charge of the country, stood not seven days, but was blown up by the tides.

Nevertheless it was agreed, that after the river was cleansed to a proper depth, there should be a new sluice there erected, if need required.

That the said water of Nene not having a free passage by Wisbeach, did great damage by dividing itself into many parts, so as to over-flow the country about Thorney and Croyland, and it was agreed in the 38 Eliz. that a drain should be made for passing away thereof
at

at Clows-crofs; which fewer lying ten or twelve feet lower than the Level above, was conceived to the beft drain to regain the furrounded grounds on the North of Wisbeach.

That forasmuch as the inhabitants of Marshland complained much of their danger, by the running of Wisbeach river from the Four gotes by the skirt of Marshland; and that, if the out-fall before mentioned should be opened, a great proportion of water would pass that way, and be much worse for them: It was therefore agreed, that if the said river, together with the drain of Clows-crofs, were carried from the said Four Gotes by a new cut to be made through the salt marshes, to an out-fall called King's-creek, beside the benefit which would arise by draining of their fens, it would secure Marshland from danger, and no way prejudice Holland.

That the river Welland also from Croyland to Spalding was very defective, for want of cleansing; and from
Spalding

Spalding complained that, by reason of some shallows, which were less than half a foot deep, two miles below the town, they could get no wholesome water for their ordinary uses.

Considering therefore these defects, he proposed to the said lords of the Privy Council, that some care might be taken to open those out-falls.

And gave his opinion that, though there were several gentlemen of good worth in those parts, who wanted neither zeal nor judgment to do great service; yet the work might be best effected by such as were indifferent to all parties, and had no interest at all in the country.

Upon this representation, it was ordered by their lordships, that the earl of Arundel, the bishop of Winchester, the lord Carew, master of the Treasury and controller of his majesty's household, Mr. Chancellor of the Exchequer, the

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master

master of the Rolls, and Sir Edward Coke, or any four of them, should take consideration of the state of the business, and prepare some opinion to deliver to the Board; of what present course might be fit to be taken in this work.

In consequence of which order, the said earl of Arundel made a journey into these parts, and having treated with Sir William Ayloff, knight and baronet, Anthony Thomas, Esq; and others, they proposed becoming adventurers.

On condition to have all the king's lands which were drowned, either by fresh or salt water, and should be recovered, at the free rent of six-pence per acre, over and above all rents or revenues, then in being, or coming to his majesty.

To have all the prince's lands on the like conditions.

To have for the subject's lands, drowned the whole year, two thirds, and for those
those

those drowned half the year, one half.

Which conditions were approved of by the king; who recommended to the commissioners of sewers to be aiding in this business.

After which, an account of their general purposes were laid before a sessions of Sewers, held at Ely, the 20th, and 23d of September; and several meetings and conferences were had at several other following sessions; and their proposals and conditions were published to the proprietors and persons interested, in order for the county to form a proper judgment thereof; after which, several disputes and misunderstandings arising, and no works entered upon, much fen was lost. The king was heard to say, that for the honour of his kingdom, he would not any longer suffer those countries to be abandoned to the will of the waters, nor let them lie waste and unprofitable: and pleased to de-

clare himself personal undertaker, and was to have 120,000 acres, as were intended to be set out for the aforesaid undertakers.

But something prevented him; so that nothing farther was done in this work; till the time of king Charles the First, when a sessions of Sewers, holden at Huntingdon, (the 6th Jan. 5 C. I.) in the year 1629, a tax of six shillings an acre was laid on all the marsh and fenny waste, and surrounded grounds; in order to the general draining; but no part of the said tax was ever paid.

But at a session of Sewers held at King's Lynn, on the first of September, in the year ensuing; at which were present forty-seven commissioners, there with Sir Cornelius Vermuyden, knight, a person well experienced in works of this kind, for the draining of this Level.

But the country not approving of him, as being a foreigner, and not liking

ing to contract with aliens, they intimated their dislike to the commissioners, and became suitors to Francis then earl of Bedford, who was owner of twenty thousand acres, round Thorney and Whittlesea, of this fenny Level, to undertake the work; at whose request, as also of the commissioners, he condescended thereto.

And at a sessions of Sewers held at King's Lynn before specified, the 13th of January following, there being forty-one commissioners then present, the said agreement was ratified, and the following articles agreed upon, viz.

That he should presently begin the work and finish it, so as to make the grounds fit for meadow, pasture, or arable; within the compass of six years, from the 1st of October following, unless the commissioners should approve the cause for deferring it any longer.

That sudden overflowings, in places remote from the out-fall, should not be adjudged a not draining, nor meeres, lakes, pools and fore-lands left by art and approbation, for receptacles, nor any part of the ground out of which he was to have his proportion.

That there should be 95,000 acres set out by commissioners, (respect being had to commoners', accommodations) before Michaelmas then next following.

That the earl and his associates might be incorporated for ever, to make laws, ordinances, and orders, and to have power over the land assigned (but no other) towards the maintaining of the works.

That the whole 95,000 acres should be liable to the first finishing the work, and 40,000 towards the maintaining it, to be subject, and in case of neglect, to the commissioners of Sewers.

That

That the private in-dikes for partition, be made by the advice of the earl, and by the direction of the commissioners.

Provided, that the port and haven of King's Lynn be preserved, and the navigation, passage, and high-ways in, upon, or about, all the navigable rivers, namely Ouze, Grant, Nene, Welland, and Glen, to be preserved, and no prejudice, annoyance, hurt, or hinderance to be done to them.

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shall

shall be there, if they will be present, to return, abate, and remove all such prejudices, annoyances, &c. so that the antient navigation, passages, and high-ways may be preserved.

For the safety of Holland, and the hundred of Wisbeach, Clows-crofs drain to be kept within foil or banks; and in case of any prejudice, then six commissioners to reform the excesses, and the earl to make recompence.

That the new rivers, cuts, and drains, the banks, fore-lands, and inside of the banks, not exceeding fifty or sixty feet, to be the earl's, paying such recompence, as the commissioners should think fit; the old ones to remain as they were.

No passage upon the banks, but for the towing of boats,

Such as receive benefit by the work, and yet no parties to it, if their land be taken within the allotment of the 95,000
acres,

acres, to pay to the earl, as the commissioners shall assess, upon forfeiture of double.

That the earl might hold the 95,000 acres in free soccage, at ten pounds per ann. fee farm, and if any other rents be issuing, that they be charged upon other lands.

That 12,000 of 95,000 acres be assured to the king, for his royal assent, and to be laid out upon the lands belonging to the manor of Whittlesea, and the marshes there adjoining.

And that for allotments out of small parcels less than thirty acres there, the earl to divide, and accept what six commissioners should assess.

These things being thus settled, the earl took in Oliver, earl of Bolingbroke, Edward, lord Gorges, Sir Robert Heath, Sir Miles Sandys, Sir William Ruffel, Sir Robert Bevill, Sir Thomas Teringham,

ham, Sir Philip Vernat, William Sams, doctor of law, Anthony Hamond esq; Andrew Burrel, gent. Samuel Spalding, gent. and Sir Robert Lovel, knight, to be adventurers and participants with him in this undertaking.

And having by an instrument of fourteen parts, settled the proportion of their shares, and other necessary conditions, they entered upon the undertaking, and executed the following works, viz.

A cut to drain the river of Mil-denhall in Burnt-fen, next Littleport, two miles long, and forty feet wide.

Bevill's leam, being a cut from Whittlesea, near to Guyhirn, about ten miles in length, and forty foot in breadth.

Morton's leam, before mentioned, new made,

Penkirk's drain, ten miles in length, and seventeen foot in breadth.

New

New South Eau, from Croyland to Clow's cros.

Hill's cut, near Peterborough, about two miles in length, and forty foot in breadth.

Shire drain, from Clow's cros to Tid, and so to sea.

And likewise, besides these cuts and drains, he caused two sluices to be made at Tid, upon Shire-drain, to keep out the tides, as also a Clow at Clow's cros for the fresh waters.

And also a great Sasse in Well Creek, with a stone sluice at Salter's lode upon Bedford river, to keep out the tides; and sluices at Erith for the fresh, but above all, that great stone sluice below Wisbeach, at the Horseshoe, to hold the tides out of Morton's leam; which cost about eight thousand pounds.

And

And that they might the better accomplish and maintain their works, after they should be compleated, (in the 10 C. I.) they obtained letters patent, bearing date the 13th of March, by which they were constituted a Corporation, by the name of a Governor, Deputy Governor, two bailiffs, and Commonalty of Guardians, and Conservators of the fen-lands, in the counties of Cambridge, Huntingdon, Northampton, Lincoln, Norfolk, Suffolk, and Isle of Ely.

And about three years after the above specified works were accomplished, at a sessions of sewers held at Peterborough 12th of October 1636 (12 C. I.) the whole Level was adjudged to be drained, and the ninety five thousand acres were set out, by six, or more of the said Commissioners, by metes and bounds to the said Francis, late earl of Bedford, and his heirs and assigns. The charge of these works to the said earl, and his participants, having been no less than 100,000 pounds.

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But notwithstanding this great expence, it was at length evidently discerned; that, though the lands were very much improved by these works, yet were they subject to inundation; especially in the winter season; and therefore in a sessions of sewers held at Huntingdon, the 12th of April, 1638, being the year ensuing, the said earl of Bedford's undertaking was adjudged defective.

And in a sessions of sewers held at Wisbeach, the 23d of May following, the particular defects therein being considered, they laid such a tax upon the several parts of the Level, as they judged equitable to enable them to complete the work; so that the said fens might, by sufficient draining, be made as well winter grounds, as summer grounds, in all parts thereof, saving convenient fore-lands and receptacles for winter-floods.

Hereupon the king, taking the business into consideration, and foreseeing that
these

these lands being a continent of about four hundred thousand acres, in case they were made winter grounds, would be a benefit to the common wealth of six hundred thousand pounds per ann. became himself the undertaker for making them such; and though council was heard before the commissioners of sewers in the behalf of the said earl of Bedford and his participants, yet they adjudging, that the complaints, made by the country of the defects before mentioned, were just, the king was declared undertaker, and was not only to have the ninety-five thousand acres, which had been set out for the said earl, but also fifty-seven thousand acres more from the country.

And entering accordingly upon the undertaking, he performed the following works.

I. A bank was made on the South-side of Morton's-lead, extending from Peterborough to Wisbeach, and a navigable

gable fosse at Stand-ground, and began the like bank on the North-side of that leam.

II. He caused a new river to be cut, between the stone sluice at the Horseshoe, and the sea below Wisbeach, of sixty feet in breadth, and about two miles and a half in length, with banks on both sides.

III. And lastly he placed a sluice in the marshes below Tid, upon the out-fall of Shire-drain, which afterwards was swallowed up in the quick-sands. (see Dugdale page 415.)

And being prevented by troubles arising in the kingdom, it seems nothing more was done by the king in the works of draining.

And as by the conditions made by the commissioners for the country, the earl of Bedford, and his participants were in recompence for their great charge

charge in those rivers, cuts, and drains by them made, allowed only forty thousand acres out of the one hundred thousand acres assigned to the king, and the work so obstructed; and the country thereupon entering upon the said ninety-five thousand acres, the said earl and his participants did in the year 1641, make their application to the parliament and had their case committed: but the flames of war soon after breaking out, not only hindered any farther prosecution of their purposes, but occasioned the works made both by him, the said earl, and his Majesty, to decay and become useless.

Whereupon William, earl of Bedford, son and heir to Francis then deceased, being willing to prosecute the work, wherein his father had been so great an adventurer, made his address in behalf of himself and some other of his participants, to the parliament, and in the year 1649, was declared to be undertaker

taker, and to have ninety-five thousand acres for perfecting thereof, as they were set out in October, the 13th Caroli, or thenceforth should be set out by virtue of that act.

The said earl, and his participants therefore entered upon the work; for the better understanding of which it will be proper to take notice, that this main body of the fens, so undertaken by them, (says Dugdale, page 415) is divided into three distinct Levels, viz. the North Level, the Middle Level, and the South Level; every one of which has its particular banks and out-falls.

The North Level, lying between the river of Welland and Morton's-lead, they defended by a bank, beginning at Peakirk, running to Croyland, and so to Brother-house, where it unites with Holland-bank; which bank (as the rest of the great banks are generally) is seventy feet broad at the bottom, and eight feet in height; Peterborough-water,

O

ter, viz. the river Nene being also kept off by the bank, extending from Peterborough to Guyhirn.

But the drains, are the same as before, which were only new scoured and opened. And the out-fall is also the same; viz. by Shire-drain, and the sluice at Tid, for the sluices set in the marshes are lost, which cost near twenty-five thousand pounds.

Moreover they caused Wilbeach river to be opened, for the length of two miles, which was a very great work.

The middle Level also they defended by a large bank from Peterborough to Wilbeach, raised upon the foundation of that, which the king began, excepting a little turn at Waldirsey-bank.

The said Middle Level, they likewise defended from the river Ouze, by a great bank from Erith to Salters-lode, on the North-west side of Bedford river,
and

and made another new river parallel to it from Erith to Salters-lode afore-said, one hundred feet in breadth, and im-banked it on both sides sixty feet wide at the bottom, ten at the top, and eight in height.

The other drains, which the said earl made or repaired in this Level, were Vermuyden's-eau, Stoney-drain, Nene old-channel, Popham's-eau, Marshland-cut, Moor's-drain, Whittlesea-dikes, and some other small ones; And the sluices, those at Salter's-lode, Popham's-eau, and Marshland-cuts.

For scouring the South Level, from the overflowing of the Ouze, they raised a great bank from Over to Salters-lode: The lesser rivers, viz. Grant, Mildenhall, Brandon, and Stoke, being defended by smaller banks, from Salters-lode, to Stow-bridge, they caused a large river of one hundred and twenty feet wide to be cut, and ten feet deep, for the more speedy conveying away of

the waters; which river is now called Downham-eau, as also two great fasses at Salters-lode, for the passage of boats and other vessels, with three sluices at the end of Downham-eau, and divers small drains, viz. Granty-fen-drain, the in-drain to the bank of the Hundred foot river, Reach-lode, and many others.

So that having accomplished the whole work within the compass of five years, the said Level was by a decree of sewers, made at Ely on the 25th of March 1653, adjudged to be fully drained. Whereupon the said earl and his participants had possession of those ninety-five thousand acres awarded to him and them.

It appears from the surveys or views of the Levels, made previous to the undertakings for the general drainage, that by diverting the great Ouze at Littleport, and turning it from its antient out-fall, at Wisbeach, and joining it to
the

the little Ouze at Rebech, that, as the channel and out-fall at Wilbeach decayed, those at Lynn improved and augmented, in such a manner, that from a poor inconsiderable sewer of six poles wide, so early as the time of Edward the First, it was become a considerable port, and a capacious haven, and so great was the force of the tides received into it, and the freshes descending through it, that the country could scarcely make any banks sufficient to resist their force, but were under a necessity of giving way to their powers, by setting the banks at greater distances; insomuch that in the year 1336, 11 E. III. it was in some places become a mile wide; such had been the force and power of the tides and freshes, acting in conjunction with, and being united to, each other, and by the like combined and united powers and forces it is, that the channels and outfalls of all the principal rivers in this island, as well as in other parts, are maintained and kept open, from age to age, fit for the important services of navigation and drainage.

And by the surveys before mentioned, it appears, that from the time of Edward the First, down to the time of the general undertaking, the channel and out-fall at Lynn had so continued to improve both in depth and capacity, as to become absolutely the best sewer in the whole Level, and a goodly, fair river throughout, and below Ely, running with such force and rapidity, and had scoured out the channel so deep, that the low water mark at Salters-lode, was ten feet under the soil of the fens at that place; besides the natural declivity of the country from the up-lands thereto.

And as in those surveys, there were no remarks nor observations made of any overflowings or drownings of that country, except above Ely, and about Herremere, occasioned either by gravels, wears, and weeds, or by the narrowness of the channel thereabouts, not being capacious enough to pass down the waters brought by the Ouze that way, after their passage through the West-water

ter was stopped, by the decay of the channels and drains which should have conveyed it with the Nene, either to ~~either to~~ Wilbeach or Salters-lode.

It is therefore reasonable to conclude, that the fens in that part of the country were then, and had been, ever since the out-fall at Lynn was become so capacious, and the channel scoured so deep, in a fruitful and a flourishing condition.

In the nature of up-land meadows subject to some short overflowing in the time of great land-floods, or by the rage of some extraordinary spring tides, by which the lower parts might at some times be annoyed; but as there was so great a fall from the surface of the land to the low water mark, the tide water would not rest long thereon, and the land-floods, if they remained on some of the lower parts, for some time in the winter, upon the return of the summer they would be soon carried off: so that

it is reasonable to conclude, that those fens were in a fruitful and flourishing condition, as before mentioned.

And this is confirmed by several petitions, presented to parliament by the inhabitants; one of which from Lakenheath sets forth,

That they had in use about five thousand, seven hundred acres of common fens, which was not hurtfully surrounded grounds, but were made beneficial by overflowing.

And above one thousand, four hundred acres of the said fens were pasture for sheep in the hardest time of winter; being never overflowed but by extraordinary wind-catches, and then they received most profit from them in the summer.

And a like petition from the inhabitants of Methwold and other towns bordering upon that part of the
Level,

Level, described the condition of it in much the same manner: that from Methwold observing that they had sheep walks for one thousand, seven hundred sheep, which fed winter and summer, upon their common fens; and that when any floods happened they came by wind-catches, and run over but some part of their grounds, and continued not long, so that they were not damaged, but made better by such overflowings: and on those grounds they kept three or four hundred milch cows for dairies, and fed their working horses, and bred store of young cattle, which were kept on the common in winter, time out of mind: (see Badeslade's history, page 81.) To which may be added what Sir Clement Edmonds reported to the lords of the Privy Council; (see page 217) The river of Ouze, says he, coming by Bedford, Huntingdon, and St. Ives, and passing down to Lynn, below Ely, runs with such a current, &c.

And along by the side of the river it is a very rich soil, both in
Cambridgeshire

Cambridgeshire and the Isle, well inhabited, and not otherwise troubled with water, but in winter, and in time of floods, which probably would not happen, but for Weeds, Wears, and Hards in the river, which obstruct the passage of the water: For, says he, the outfall of the river Ouze is ample and great, and gives large passage for the fresh waters, descending from the inland countries, and also to the tides.

From these accounts it is manifest, that at the time immediately preceding the general undertaking, the South Level was in a flourishing condition, and the river Ouze a quick and deep river, having a sufficient and cagacious outfall.

There seems to have been nothing more wanting, to have prevented the land floods from annoying it, even in the winter season; and the making it completely profitable and certain,

tain, but the enlarging the wears, and such parts of the channel as might be too much contracted, the taking up the gravels and the due cutting of the weeds, no not even so much as Imbankation.

It seems therefore something surprising, that the adventurers should be induced to undertake so expensive and laborious a work, as to cut a new river one hundred feet in breadth, and twenty miles in length, on purpose to turn the water of the Ouze out of that Level, which might at so small an expence have been safely made to pass through it; especially as the Bedford river had before been cut, at so small a distance from it, by way of substitute for that branch of the Ouze, called the West water, then stopped by the decay of its proper channel, which stoppage it seems had also turned a part of the Nene, down that way, and also by way of flaker to the other branch.

Whether

Whether it was the passing the upland waters quicker down to their out-fall, and sooner to relieve the meadows aloft, was the striking consideration, which influenced the great Vermuyden to advise them to this undertaking, I cannot say; but it evidently appears, that its effects had not been clearly foreseen, or thoroughly considered; for so great a body of water being carried down this new channel, lying with so much quicker descent, and being hurried into the Old river much sooner than in the antient round-about course, and filling it much sooner in the place of concourse, than it could be filled by the smaller rivers, left to supply it in the former course, the water at that place being raised above the water in the old low channel, some part would naturally flow up into it, for the same reason that the tide rising at the mouth of a river higher than the contiguous waters running down it makes a current into it: and that this was actually the case, appears from History.

For

For the new Bedford or Hundred foot river, being cut in 1650, it was found necessary to erect a sluice at Denver, a little above the said place of concourse, to prevent the water coming down the said river in the time of land floods, more especially from reverting up into the Old low river, in the manner before described, which the year after, viz. 1651, being agreed on, and accordingly erected at the expence of seven thousand pounds, when the land-floods descended down the said new Bedford, or Hundred foot river, and filled the Old channel in the manner before described, the doors of the said sluice were kept shut for a long time together, by that pressure of the water against them, which would have carried it up into the Old river, had not the stoppage at the sluice prevented it: and which though it kept the water from so revering, yet it dammed up, and stopped the water brought down by the Little Ouze, and all the other small rivers, which came into it, above the said sluice,
till

till they rose to a level with the waters brought down by the Hundred foot river below the same: by which means the lands in the South Level were much annoyed, their drainage obstructed, and the bottom of the river became liable to grow up by the siltage and mud subsiding in such time of stagnation.

And the tides being thereby hindered from flowing up into their receptacles, in the antient course of the Ouze, and the quantity of the ebbs greatly diminished, the river and outlets below the said sluice, even down to the sea, became greatly choked with sand and silt, deposited and dropped by the tides; insomuch that the outfalls of the sewers and drains for marshland, leading into the lower part of the Ouze towards Lynn, were most of them stopped, and the country thereabouts, as well as that part of the South Level lying above the said sluice, became overflowed and drowned; (see
Badeblade's

Badslade's history, page 84,) where he says, the channel below the dam at Denver immediately after the sluice was erected, silted, and grew up, in a very little time, eight or ten feet.

And so apprehensive were the navigators, merchants, and inhabitants of Lynn, that such an effect would be the consequence of erecting that sluice, that before it was erected, they in conjunction with the university and town of Cambridge, and other places, used all lawful means possible by petitions &c. to prevent it. (see Badslade's history, page 52.)

And after they had experienced the bad effects thereof, in the year 1696, the sixth of January, (9 W. III.) they presented a petition to parliament, in conjunction with the university and town of Cambridge, the dean and prebends of Ely, towns of Huntingdon and Thetford, and the land-holders of the South Level, praying for the

the removal of the said sluice and dam, the prejudices of which to the channel and outfall at Lynn.

By many evidences was proved, that in the year 1645, about six years before the said sluice was erected, and for the time preceeding, down to that date, the channel and outfall to the sea, had been and was deep and good; that the floods and ebbs were strong and forcible, and the tides ran up full five hours and an half, that since the building of the said sluice the channel, the outfall, and the roads where the ships used to ride at anchor at sea, called Fietne and Ferrier were in the year 1660 so grown up, that at the South End of the town, and on the West side of the river where there had been two fathom or twelve foot water at low water, the West side of the river was grown so shallow that no ships could ride, and the channel between Common staith and St. Anne, was dried up, and at the Crutch which had been
twelve

twelve feet water there was then but nine feet.

And in the years 1675, and 1676, the West channel below the town was grown up, and Felney road lost.

And from the year 1675, to 1696, from the South end of the town to Farrier-road, the river and channel gradually from year to year grew worse and worse, so that there was but then three feet water at the Crutch at low water, where there had been twelve.

And the channel below the town to Farrier road was become so bad, that a ship of nine feet draught, could not sail from town to the road in one tide without a fair wind. And a ship of twelve feet draught, could not come from the road to the town, without lying by the way for want of water, and the sands in the channel were so bad that no ship could bear its burthen, but break in pieces, by which means many ships had

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sustained

sustained from one hundred to four hundred pounds damage per ship, and some quite spoiled.

That since the building of the sluices, the tide being stopped out of its antient receptacles, its force was greatly weakened, and the time of its flowing abated; running up now only three hours and an half; whereas before, it used to run up five hours and an half.

That before the said sluices were erected the tides flowed twenty-four miles farther into the deep rivers of Ouze, Stoke, Grant, and Mildenhall.

That the sole foundation of the sluice is raised, and stands above eight feet higher than the bottom of the Old river, whereby so much weight of water is lost,

That by means of the said sluices the water-way in the river was contracted from being one hundred and fifty feet wide

wide to these passages of eighteen feet each; by which means the in-draught of the tides was diminished.

That the Old river above the sluice, was choked up with weeds and mud, and became almost impassable.

That where large keels and barges were formerly used, now none but flat boats or lighters could pass.

That before the sluices were erected, when the tides had their antient natural course up those deep rivers, which were thereby filled with vast quantities of water; the ebb at Lynn was run off in two hours at least before it fell back in the place where the sluices stand, that being followed by the freshes every twelve hours they fell with such weight and force in a strong and rapid stream, that they cleared the river and harbour from the sands brought in by the tides before they could fall and settle.

That the Hundred foot river bears no manner of proportion for the depth or breadth with the old rivers, being cut on rising ground but five or six feet deep.

And that the channel of Lynn after it had continued in a state of improvement, and had been continually enlarged, and deepened, from the time of the first turning of the water of the Great Ouze into Ouze parva, to the time of the undertaking of the general drainage, the cutting of the Bedford rivers, and the setting down of the sluices at Salter's-lode, and at Denver, and that after that time came into decay, is evident, for in the year 1611, 9 J. I. at a sessions of sewers held at King's Lynn, Sep. 26, it was ordered that the sluice at the end of Rightford-lode, next the Ouze, should be taken up, and a larger set down, the better to drain thirteen hundred acres of low-lands, in Upwell and Outwell: And that the sole of the said sluice should be laid one foot under the low water mark,

mark, of the said river of Ouze, as it usually flows about the end of August; and that there should be two funnels, each four feet wide, and six feet deep, with sufficient sea doors and land doors for the same, (see Badellade's history page 10)

The latter end of August 1723. Mr. Peter Bateson, William Stafford, esq; captain John Edwards and myself, (says the author above quoted) sunk and bored to find the apron or sole of the fore-said sluice, and we found it to lie six feet, one inch and a half under low water mark: We next measured the two funnels, and found each to be four feet wide, as they were ordered to be made, but they were but three feet, four inches deep; therefore it is plain, that the soles of the said sluices had been raised two feet, eight inches; so that the original apron, had it been lying, would have been eight feet nine inches and a half lower than the low water mark is at this time. And now there is not above six

inches depth of water in the river at low water mark, whereas formerly there never was less than a depth of four feet at low water mark here.

We also dug and bored to find the sole of Hunts sluice, on the North side of Stow-bridge, and found it to be eight feet, eleven inches, lower than low water mark.

These experiments prove, that when these sluices were set down at low water mark in the Ouze, was at least eight feet lower than it is now.

And it may be added, that they also proved that the bottom of the river, at the time of setting them down, was eleven feet lower than at the time of making the experiment: which plainly shews, the bad effect which those cuts and sluices had upon the channel below them.

To what has been before said, may be added what the same author says thereof,

thereof in page 84 viz; The channel below the dam at Denver did immediately after silt up, till its bottom came to be on a hanging level with the bottom of the Bedford river, i. e. it silted and grew up in a very little time eight or ten feet.

And in respect to the ill effect of the sluice at Denver upon the South Level, it is to be observed, what the lord Gorges, (who was one of the undertakers and the most skilful in draining) says in page 82.

The adventurers finding these sluices had such ill effect upon the South Level, for whose benefit alone they were designed, and observing that the river on the Lynn side of the sluices was silted up ten feet, which growing up of the river was a great obstacle to draining,

They, anno 1653, cut Downhameau, alias St. John's eau, beginning above Denver sluice, and carried near line-right, about five miles along by the East

side of the Ouze towards Lynn, to a little below Stow bridge. This river Sir William Dugdale says, was made one hundred and twenty feet wide, and ten feet deep, for the more speedy conveyance of the waters out of the South Level, with three sluices at the end.

And because of this ten feet choke, the adventurers found themselves under a necessity also to cut a new drain on the West side of the Ouze out of Well creek, to fall also into Ouze a little below Stow bridge, called Tong's drain or Marshland cut, to convey the waters out of the Middle Level, which before the ten feet choke fell into Ouze at Salter's-lode, where, as we have already observed there was before the sluices were erected, a fall of ten feet from the soil of the fens to low water mark in the river Ouze.

Immediately after these two drains, viz; Downham eau, and Tong's drain were made, the river Ouze grew up and the

the sands increased more between Salters-lode and Stow-bridge, than in any other part of the river, occasioned chiefly by Downham-eau, through which part of the waters that should have helped to scour away the sand, were turned out of the Ouze for that length of way; partly by turning many of the waters of the Nene through Tong's-drain, and partly by keeping the sluice doors shut most part of the summer, so that no fresh water at all was suffered to come that way to help to scour out the river beneath the sluice.

But principally by another effect of that dam whereby the receptacles of the tides, and the large in-draughts of the waters, which used to put up with them from sea, and were received into the said rivers, were intercepted, and cut short near thirty miles of their wonted flow; by reason of which there wanted that plenty, force and weight of a back water, which is necessary to scour out the silt and sand, brought by the tide.

So

So that the river continued to silt up so very fast, that in about three years time, after the making of Downham Eau, its outfall was choked up and lost; and the Eau dammed up.

And the bridge at Stow which had been built over it was taken down, to the charge of maintaining it, and instead thereof a road made cross it.

And Downham Eau was of no use, till 1666, when the twenty-four-foot drain was let into it, which was cut from Soam Meere for draining it by tunnels under the three rivers afore-said.

But now those tunnels are stopped up, and the Eau is rendered again of little, or no use, the bottom of the Ouze being higher than the sole of the sluice next the Ouze, and also as high as the soil of the fens.

Thus in the course of a very few years, those works which were designed

ed to drain the fens (particularly the South Level) and to have made them good winter lands, did the reverse, (that is,) absolutely drowned the Level, now no longer summer lands.

Thus it appears, that in the cutting of those rivers and erecting those sluices one error was succeeded by another and nothing done that was productive of the benefit intended.

In the year 1650 or 1651, the new Bedford or the Hundred-foot river was cut, and a sluice placed at Erith, to keep the waters of the Ouze, out of the South Level to secure the upper parts thereof from being annoyed in winter time by its waters, and for conveying them in a shorter passage, and less time to their outfall.

But an unlooked for effect, arising from the project, or mode of executing it, the Old river laying much lower than the said new channel, was more filled at the place of concurrence
by

by the waters brought down by it, than by the remainder of the rivers coming into it through the old natural channel, for which reason a great part of the waters brought down by the new river reverted into it; by which means the lower part of the South Level became annoyed and surrounded by the very means intended for the relief of the upper part thereof.

To remedy which, the projectors brought themselves as they imagined into a necessity of erecting the sluice at Denver, to prevent that pernicious effect.

But this expedient became fraught with much greater evils and far worse effects, than were intended to have been prevented by it.

For not only its gates were forcibly kept shut in the time of land-floods, by the waters coming down the New river, till the waters in the Old river



ver above it came to a level with those below it, by which means the lands were overflowed and surrounded, but the tide-waters being shut out of their antient receptacles, and a great part of them being intirely stopped, they for want of their proper motion, deposited so much of the silt with which they came loaded, as to choke up the river, in the manner which has been before described.

The river below the sluice being in a very little time thus dammed up, and the lands thus surrounded, and overflowed, they were obliged to fly to another resource, and try another expedient, for the relief of those lands which their ill-concerted schemes had so much annoyed and prejudiced.

And accordingly in the year 1653, but about two years after the sluice at Denver was erected, St. John's eau was cut at a very considerable expence, in hopes of obtaining the relief which was
wanted

wanted for the South Level, which was so far from answering the end expected, that in so short a time as three years it became filled up, and rendered intirely uselefs, in respect to the purposes intended by it. Such were the unhappy and for ought that appears to the contrary, the unforeseen effects of placing that sluice in the course of the tides flowing into their antient receptacles.

As all human persons are subject to errors, and the mistakes of others may teach wisdom to ourselves, I must humbly conceive, that a useful lesson or two may be learnt from those proceedings.

The first is, that in such expensive, great, and important works, every scheme, and every project should be well weighed, and maturely, and thoroughly considered in all lights, relations, and circumstances, before it is perfectly adopted, and carried into execution, and as nature acts upon the principles of wisdom and reason, and as all
people

people do not view the same subjects in the same light, and scarce any person can view such subjects as are of importance in all various relations which they may stand in to others, it must therefore be the most safe, and the most prudent method, not to be strongly attached to the sentiments, or opinions of any one person, however judicious; but to collect, weigh, and compare the sentiments of such others, as may have thought upon, or considered the subject with the greatest deliberation.

The second is, that as it appears by the above recited relations, how prodigiously pernicious and prejudicial the setting down of that sluice in a tide-way (so as to stop the waters in their influx from the extensive receptacles which they used to fill, so many certain times in the space of a year, and thereby robbing the out-fall of the great and repeated force and weight of the ebbs produced by those in-draughts) was, both to the drainage and navigation of this large river and out-fall,

Therefore

Therefore no such sluices, dams or stoppages ought to be put, or set up in the tide-ways, especially of any rivers under the like circumstances, and immediately communicating with the ocean.

For however useful sluices may be for the receiving the sea water for the filling and discharging of such reservoirs, as are made and contrived for the scouring of some short channels, for the inlets and outlets of ships or vessels, into and out of some particular basons, piers or docks not far distant from the sea, and where there is not naturally a sufficient quantity of land-waters or receptacles to make such an indraught for the tides as to keep the waters in motion, and to produce a large and sufficient quantity, weight, and force of ebb, yet in all rivers communicating with the sea, where they prevent the union of the tides and freshes, stop their motions, and separate their operations and
forces,

forces, they must reasonably be supposed to be, as experience demonstrates them to be, very pernicious and hurtful to the channels and outfalls of such rivers; as all dams and obstructions and every thing, which impedes the current and motion of the water must be.

And where sluices are made use of, in the manner and for the purpose before specified, or by the way of Locks for raising of ships and vessels from one Level to another, in Basons and Canals where the water lies at rest and stagnant, those reservoirs, receptacles and canals are by the subsidence of the mud and fullage of the waters especially if it be sea water with which they are supplied, continually growing up, so that in certain periods of time, and often in a very short time too, they are rendered incapable, and become unfit for the uses and services intended, without the assistance and Labour of men's hands; and frequently

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become

become too expensive to be supported and maintained unless in some particular instances; besides, the operations of reservoirs are so irregular and unequal, so restrained and contracted, that sometimes they effect very little or nothing, and of ten times do much more hurt than good; by forcibly raising and driving away the mud, sand, or fulage from and scouring a hole much deeper than wanted, or than is useful, in one place, and carrying it to some other distant place, where its force being grown much weaker, suffers it to fall down, subside, and fill up the channel: and instead of mending and deepening, makes it shallower, than it naturally was.

And this being the mode and manner in which all artificial reservoirs do act, it is very manifest that they can only be useful in small distances; and even then are attended with very irregular, and very often pernicious effects; and therefore ought not to be made

made use of but in such cases where no other means can be obtained, and they are at best but temporary expedients.

But the united, constant, and powerful operations of the upland waters, tides and ebbs acting conjointly, and as it were in aid and concert with each other, are the great and effective powers and forces, by which the Firth, the Tweed, the Tyne, the Tees, the Humber, the Thames, the Medway, the Severn, the Nene, the Welham and the Welland, before the imbankations, and all the other principal rivers in this Island, and elsewhere, where Nature has not been too much obstructed by the works of Art, and the wrong devices of men, or by some violent commotions in itself, such as earthquakes, &c. have been maintained and preserved from their first formation at the time of the Deluge down to this time; some few exceptions admitted.

Whatever therefore diminishes the quantity, or divides and separates the force and power of one, or both of these two great and natural agents, if I may so call them, must necessarily lessen, abate, and diminish, either one or other, or both of their efficacie and effects in scouring, preserving, and maintaining the channels, through which they pass, or in which they act; and consequently must be pernicious and hurtful thereto; in the like manner as was the aforesaid sluice at Denver: which as it was badly contrived, so the fabric was very ill constructed; for being raised upon a bed of loose, uncemented clunch, or hard chalk-stones, confined only by ranges of separated piles, in the year 1713, it was suddenly blown up by the tides, or rather by the washing away of the clunch, upon which it stood; and the foundation giving way, the superstructure instantly fell; and the whole fabric, which cost about seven thousand pounds in erecting, was in the space of

of about sixty-two years intirely demolished, after having produced all the mischief before described.

And yet so short were the views of many people, and so strong their prejudices, that no experience could deter them, nor no agreements issued them from rebuilding such another like sluice in the year — in the very same place, at a like great expence.

And I am thoroughly of opinion, that had it not been for the enlargement of the river's mouth, about two miles below Lynn, by which means there has within these few years been a greater influx of the tide water, and which also has rose higher, than some years heretofore, which has increased the quantity, force and weight of the ebb water, which has in a great measure counter-ballanced the effect of the said new sluice, the bad consequences thereof could have been more manifest, before this time: though I

have been lately informed, they begin now to become very apparent, the harbour being of late come into considerable decay.

As I have not met any particular accounts either of the continuance, or effects of the sluice in Wisbeach river at the Horse-shoe, which Dugdale says cost eight thousand pounds building, I can say nothing from facts, relating to it: but as it is now down, I am inclined to think, that both its fate, and effects have been similar to those of the sluice at Denver.

And as to that great sluice lately erected at Boston, at the mouth of a fine, and what might otherwise be a very beneficial new river, a little above the town, for keeping out the tides; I am so far from expecting any advantage from the said sluice, that I am fully of opinion, if it is kept constantly in use, and under the same regulations for damming up the water above: as at the first,
that

that in the course of a few years the channel, instead of being improved, will be greatly injured, and the out-fall prejudiced thereby.

And had that expence been saved, and the tides had free admission into the said New river, there is great reason to believe, that the channel and out-fall would have in a short time been improved by the weight and force of the returning ebbs, and the freshes descending with the rapidity, which the continuation of the indraught up the said river, after the turn of the tide at the out-fall would occasion, being scoured out so deep, that vessels of twelve or thirteen feet water, or more might upon any ordinary tide come up to the quays and wharfs at the town, much better than they used to do, before the late decay of that river.

As there has been already fifteen thousand pounds sunk with the sluices in the marshes about Wisbeach out-fall, and eight thousand pounds laid out upon the sluice Horseshoe, which is now de-

molished and gone, I should suppose that there can be no great encouragement to enter upon any new works of that kind, where they have been attended with such bad success, and such fatal consequences.

And it should be remembered, that it is not the sand, mud, or fullage, which is brought into a river, and carried through it, which choked up its channel, but that which is dropped and deposited in it by the obstruction of the current, the abatement of its velocity, and diminution of its force; and the greater any of these are in degree, the greater and the worse will be the effect, in the choking up the channel; therefore every thing which occasions obstructions, stoppages, or long stagnations in the currents, and courses of the rivers, should be carefully avoided.

It is true, there always will be, between the influx of the tide, and the descent of the freshes, a point of stagnation

tion in some part of the channel, or other, as likewise a time of stoppage between the influx and reflux of the tide-water, in which time the sand and soil, with which it is loaded, will be dropped, and suffered to subside. Yet as this is but short, and the sluices, which obstruct the motion of the water, during the whole time of its influx, are of long duration; the prejudices and hurt done by the former, will be very inconsiderable, and scarcely any thing, to be compared with what must of necessity be done by the latter; as is evident by long experiment and observation.

For as all the considerable rivers in this island, and elsewhere, have their channels and outfalls preserved by the united operations of the tides, and upland waters, flowing alternately into, and through them, as has been before observed: In consequence it follows, that whatever, unites the operations of the tides, freshes, and ebbs, by enlarging their quantities, increases their forces, and augments their powers,

powers. must advance and promote the scouring and deepening the channels, and improve the out-fall of all rivers, immediately communicating with the sea.

Having now gone through an historical account of the Great Level, the changes it has undergone, the state of the rivers, and the principal works done therein, with such observations as occurred in the way, especially such as more immediately relate to the channel and out-fall at Wisbeach, I shall by way of recapitulation, collect the substance of what has been said, into a few general heads, or propositions.

First, The upper and principal part of the Great Level of the fens was antiently and originally good, and sound ground, plentifully stocked with wood and large timber trees.

That it was plentifully furnished with wood and timber trees, appears
from

from the great numbers of the bodies of those trees, which have been found buried under the moor and fullage, which composes the present surface of the fens, and the great number of roots of those sort of trees, which are found in like manner buried under the present surface, and standing in the soil, and in the manner in which they originally grew. (see Dugdale, page 354)

That the soil was found and good is evident by the timber trees and wood growing upon it: a rotten moorish soil, not being capable of producing, or supporting, and nourishing such sort of trees; and likewise the swarths of grass, found near Whittlesea by Mr. Underwood, lying eight feet under the then present soil, doth also evince.

This seems to have been originally the general state of most other parts of the fen lands in this island, lying at a distance from the sea; as is evident from the great quantities of such-like trees,
being

being found in the isle of Axholm in Lincolnshire, the marshes of Kent, Suffex, Somersetshire, Yorkshire, and most of the other fens in this island.

Secondly, The vast number of timber trees which have been found in the manner before mentioned, buried and severed from their roots, were taken down by the Romans, in order to bring the inhabitants of those parts into subjection, and to facilitate and complete the conquest of the island.

That they were taken down by the hands of men is very plain, by the manner in which they were severed, vast numbers in the isle of Axholm having been severed by fire; as appears by their ends being coaled, and multitudes of others, appear evidently to have been sawn down.

And that this was a work that was done by the Romans is highly probable, for the antient inhabitants, the Britons,
as

as they were a very barbarous, hardy people, and had very few regular towns, it appears by the accounts given in Leland, and others, that they made the woods both their habitations, and places of security and shelter from their enemies, and that they might do so in the fens, as well as other places, is highly probable; and if so, the Romans would be under a necessity of taking down those woods, and clearing the ground in order to come at them.

That the Romans were employed and met with difficulties, in reducing those parts of the island, is evident, by the causeway found buried under the moor, supposed to be made by Severus one of the Roman emperors, who was employed in subduing the Britons in that part of the fens, extending from Denver in Norfolk, through the fens to Peterborough; as mentioned (in page 11) and by that quotation from Tacitus in *Vita Agricolæ* in the same page, in which it is said, that the Britons complained

plained that the Romans wore out and consumed their bodies and hands in clearing the woods, and banking the fens.

And as they were driven to a necessity of cutting down the woods, and clearing the grounds, to force the inhabitants of the like countries in France and Flanders out of the holds and shelters, in which they secured themselves, it is highly probable, that they were obliged to do the like in Britain, (see page 101) where speaking of the last mentioned countries it is said,

This country was part of Gallia, but so full of woods, and fens, that the victorious Cæsar could not conquer it, though he subdued all France, except the fenny parts, which were not passible, and which were the province of the Menapii, which Cæsar could never possess. For, not dwelling in towns, but in cottages within fenny places compassed with woods, they did more annoyance
to

to the warlike Romans, than they received from them.

It is true that Cæsar, cutting down the woods, did attempt to pass the said fens, but by reason of their greatness, and that the winter season approached, despairing of success, he forebore the enterprize.

As this was the case abroad, under like circumstances, I see not the least reason to doubt, but it was the same in the fenny parts of our island in general: For the trees found in the fenny parts thereof, appear to have been taken down by the hands of men; in the like manner with those, in the places particularly spoken of.

Thirdly, The surface of the lands in these parts of the Great Level was originally lower than the present surface, from three to eight feet, or upon a medium about five feet.

And

And the lands and marshes near the outfalls of the rivers, near to, or bordering upon the sea, were at the same time from ten to sixteen, or eighteen feet lower than they are at this present.

The former part of this proposition proved by the depth of which the roots of those trees before mentioned are found standing, and the swards of grafs, which were found lying at Whittlesea, as likewise by the skeleton of the fish found by Sir Robert Cotton, near Cottingham, &c. (see pages twenty-four and twenty-five.)

The latter part is proved by the tan-vats found near Spalding, the Smith's shop, and roots of the trees found near Boston; the fur bushes and nut-trees the large stone, and the cart wheel &c. found near Magdalen; The strata at the setting down of the Sasse at Salter's-lode &c.

That

That the water in the upper parts of the natural rivers, in its ordinary state at that time, run considerably perhaps not less than four or five feet under the soil of those lands which are now fens.

This proposition is evident, in as much as if the waters of the rivers had in their ordinary state, constantly and continually overspread those parts of the levels, and kept them constantly inundated, the soil must have been so weak, rotten and unsound, that it could not possibly have produced or supported the wood and timber trees before mentioned.

Corrollary ; from this proposition it follows; that the lands lying along the margin of those rivers, at a distance from the sea, and which were not woodded, were in the nature of up-land meadows.

Fifthly, The lower parts of those channels and their out-falls at sea were

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at that time deep and good, not choked with silt, sand, or other fullage.

And the declivity of those channels, or the fall from the upper part of the Level to the low water at the mouths of those rivers, was considerably and proportionally at the same distances greater than it is at present.

The first part of this proposition is also evident, for if the outfalls and the lower parts of the channels had been at that time silted and choked, as they since have been, the rivers above could not have been kept under soil, but the upper parts of the Level must have been continually inundated, the soil weakened and rendered so unsound as not to have borne such timber trees, &c. as before mentioned.

The latter part of the proposition is but as it were a corollary to the first part; for if there had not been a more quick fall for the up-land waters than there

there is at present the water in the upper part of the Level could not have been kept so much under foil, nor the land kept so sound, and dry, as it appears to have been.

Sixthly, Though the lands in the upper parts of the Level were lower than they are at present, suppose as before, five feet, yet they were never hurtfully annoyed by the tides flowing up the rivers.

This proposition is also proved, by the flourishing condition of that part of the Level at that time.

For though the bottom of the rivers were considerably lower, than they are at present, yet the activity at equal distances being proportionally greater, and the natural course of the rivers much curved, crooked, and winding, it took up so much time for the tides to reach the distant parts thereof, that by the time of its arrival, the tide was greatly

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fallen at the entrance, and the motion of the water upward so abated and retarded, the swell of it so moderated, that it very seldom would rise on the meadows in the upper parts of the Level.

Seventhly, The lands lying in the lower part of the Level, and bordering on the lower parts of the rivers, their out-falls and the sea, being intirely defenceless and unimbanked, by the constant rising and falling of the tide waters, must have been constantly covered and uncovered therewith, and therefore must have been in the nature of salt marshes.

As it is evident by those several articles found at various depths, and as they bordered upon the lower parts of the rivers, near the out-falls into the sea, and the tides which put up into those rivers rose, than upon the coast; much in the manner which they now do, and as all those flat countries bordering upon the great bay have their outfalls,

outfalls, and the lower parts of the rivers leading into it, if the banks by which they are now defended were taken away, the lands would now by the spring tides at least be overflowed and inundated, it is very evident, that when these lands were fourteen feet upon an average lower than they now are, and intirely defenceless and unimbanked, every common and ordinary tide must rise above them, and flow over them; so that they must have been constantly and alternately covered and uncovered with the tides, and must have been absolutely in the nature of salt marshes, and intirely unfit either for habitation or production, or the nourishment of any kind of wood or timber trees.

Of this kind was Marsh-land, the lands about Wisbeach, Spalding, Boston, Holland, and the low and flat parts of Lincolnshire communicating with the great bay, or bordering upon the sea coast.

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Eighthly,

Eighthly, That the above mentioned marshes and parts of the aforesaid Level country bordering upon the bay, the out falls, and the lower parts of the rivers aforesaid, were imbanked, inhabited, and cultivated, when and whilst the surface of the said country was from ten to eighteen feet lower than it now is.

That these countries could not be inhabited, or were any way fit or proper for the producing, nourishing, or supporting wood and timber trees before their imbankations is evident, from the foregoing proposition.

That they were inhabited, cultivated, and improved, whilst the soil and surface remained so much lower than it is now, as plainly appears, by the aforesaid articles discovered about Boston and Spalding in Lincolnshire, and near Magdalen in Marsh-land in Norfolk. It necessarily follows therefore, that those countries were originally imbanked, inhabited,

habited, and cultivated when and whilst the surface thereof was from ten to seventeen or eighteen feet lower than it now is.

Ninthly, That the original imbankation of those marshes and flats before mentioned, bordering upon the coast and bay, the out-falls and lower parts of the rivers, was a work of the Romans.

That the original inhabitants where an hardy, ignorant sort of people, mostly content with such uncomfortable accommodations as nature afforded them, and no way inclined to enter into any great and considerable attempts for improvements, is very evident, by the account given of them in Baker's Chronicle; for which (see pages 5 and 6.)

And in a letter to Sir Christopher Wren, by Mr. Woodward, concerning some antiquities discovered near Bishop's Gate, London, published in the eighth volume of Leland's Itinerary, speaking

of the Britons, he says, The Britons in those days were barbarous, and wholly uncivilized; except some, who had skins and hides cast over them, they went naked, and painted their bodies with figures of various animals, after the manner of the savage nations; their diet and method of life was very mean. There was little or nothing that could claim the name of science among them: what they had was lodged with the Druids, who were the priests and philosophers of those times.

As to the habitations and state of building amongst the antient Britons, we have had of late (says the forementioned author) some who upon the authority Geoffry of Monmouth, and the heat of their own fancy, have talked of remains of Temples, and other noble structures of the Druids.

Whereas in reality the Romans at their descent here found nothing that carried the appearance of a building, no not one
stone

stone upon another nor so much as a brick in the whole island.

From what has been said of the anti-ent Britons, there does not appear to be the least reason to suppose, that they ever attempted the undertaking any such kind of work as the original imbankation of those marshes; but had contented themselves to take nature as they found it, without fatiguing themselves, with the labour of making improvements: That the Romans were in many parts of the Great Level, and were employed in subduing the inhabitants of that country, and executing some considerable works therein, their coins found in several parts of the Great Level, and the causeway supposed to be made by the emperor Severus therein, as before recited, do plainly manifest.

And as they were an industrious, disciplined people, ambitious of grand and magnificent works, and brought over large armies, which they employed in
making

making roads and causeways in other parts of the island, it is very reasonable to suppose, that when they cast their eyes upon so large a tract of land as the marshes must appear to be, lying open and defenceless against the tides and sea, which their wisdom and sagacity would instigate them to improve, that they would soon be induced to set about so promising a work, as the imbankation of those marshes must appear to them to be, which lying at so great a distance from the upper part of the Level, which was then in so flourishing a condition, it in all probability was not considered, or indeed it might not be at all apprehended, how it would be affected thereby. It is therefore most reasonable to believe, that the original imbankation of the marshes was a work of the Romans.

Tenthly, That those works done by the Romans of imbanking the marshes, and the lower parts of the rivers leading through the Great Level, and the contiguous countries, were the primary
and



and original cause of the continued inundating, overflowing, and surrounding the said Level.

The rivers being thus naturally deep and quick, when any land floods happened, the waters would not often, (only when they were very considerable) rise out of the channel in the upper parts of the Level, but would be passed off with celerity through them to the more low parts, where meeting with the influx of the tides, they would be raised out of the channel on to the marshes and the lands contiguous or immediately above them: from whence in the time of ebbs it would descend with great force and rapidity, both through the rivers and over the whole surface of the marshes, or through large creeks and gullies made therein, into the sea.

And in extraordinary land-floods, when the waters were raised out of the channel in the upper parts of the Level, and spread over the lands lying upon
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the margin of the rivers, in the manner of the up-land meadows, it would not long continue there, but by the natural declivity of the country, would soon fall down to the lower parts thereof, in the same manner as they do from the upper land meadows, without staying to do them any prejudice or hurt.

And as this was the natural course and mode of the waters and land-floods, passing through and over the upper parts of the Great Level, as well as all such-like lands, before the imbankation of the marshes adjoining thereto, it is evident from reason, as well as from fact, that those lands could not then be hurtfully annoyed, or long overflowed. or surrounded thereby.

But when those marshes, to recover them from the sea, and to defend them from the upland waters, without which they could not be made habitable or profitable, were inclosed with banks, then the land floods would be interrupted and stopped

ped in their progress and descent towards the sea, and being dammed up by those banks upon the surface of the lands lying immediately above them, and being left to find their way into the ocean, as the force of gravity directed them, by the confined channels of such rivers as they could get into, or such other passages as they naturally found out, or made for themselves; and being constantly augmented and increased by the waters brought down to them by the upper part of the channels, they would lie long upon the lands, soften and dissolve its natural soil, and mixing it with the fullage and mud brought with them entirely alter its nature and composition, and from fruitful pasturage turn the said lands into a wilderness of reeds and rushes.

And as these grew up, the waters would be more and more obstructed, and the lands be more and more inundated, annoyed, and surrounded; and the rivers wanting their proper supply of those waters, would be continually
decaying;

decaying; till at last the country would be turned into an horrible deep fen, such as St. Guthlac describes the Great Level in his time to have been.

Though it is difficult to trace the progress and gradations by which this great change was brought about, yet as Marshland in particular, could not be secured from the up-land floods, so as to be made profitable and habitable, without being defended by banks therefrom, as well as from the ocean, it is highly probable that those floods were kept off at first by an imbankment of the old course of the river from Wisbeach to Littleport, or at least the most considerable part thereof; the effect of which I apprehend would be the overflowing and surrounding of that part of the Level lying along and immediately above the said antient course of the river, from Well to Littleport: and this annoyance would at first, be in degree and continuance greater, or less, according to the longer, or shorter, continuance of the wet or the dry seasons succeeding the inundations.

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But that such imbankation made for the security of Marshland from the land-floods, must have had the effect before described, I think is very easy to be apprehended and allowed; and therefore it may fairly be said, that the imbankation of the marshes and the lower parts of the rivers were the primary and original cause of the inundating the Great Level.

As the waters which so inundated those parts of the level, had then perhaps no other way to pass to the sea, but through the channel of the old river, and they were continually supplied, and as it were fed by the rivers above them, they must, as has been before observed, lie long upon the lands; but the channel of the river so long they could get free access to it, being constantly supplied thereby, would yet be preserved deep and good: but as the soil so altered would be naturally addicted to reeds and rushes, and to the support of alders and other aquatic plants or trees, many

ny of which might possibly be left standing by the Romans, which increasing with the reeds, rushes, would in time obstruct the land-floods from getting to the rivers, by which means the Level would become more and more annoyed, and the waters being thus stopped and interrupted in their passage to the rivers, they would for want of a proper supply of back water begin to decay, so that in time every thing would contribute and concur as it were in the bringing on a general inundation and furrounding.

That several parts of the Level were encumbered with reeds and alders, which in some places served for the harbour and shelter of deer, and were a part of the king's forest, appears from a presentment made the 24 E. I. in the year 1305, in which it is set forth :

That the tenants of the abbots of Ramsey in the town of Ramsey ; and the tenants of the abbot of Thorney in Whittlesea,

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provement of their several estates.

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waters

waters of the Great Level, all the sewers and drains were contrived and made to lead and convey the waters thereto: which in all probability was then for want of a proper supply of back water, come into decay, and not passing the waters off so readily as they desired, for the more speedy and effectual relief of that part of the Level about Littleport, Well, Maney, Mepal, Sutton &c. they found means of turning the waters of the Great Ouze from Littleport by Rebeck into the Ouzé parva, to lead them to another outfall at Lynn: Thereby greatly accelerating and in time compleat- the ruin of the original outfall at Wisbeach; for that growing by the means above mentioned, into more hasty decay, (in the 11 of E. III.) in the year 1336, it was presented, that the stream of the water called Wel- lenhee, which had been used to run towards the sea, under the sea bank of Walsoken, where it had made so great a depth and Hollowness that
the

the lands in that town had a sufficient evacuation of their waters to the sea thereby, being at the suit of the Inhabitants of the counties of Northampton, Cambridge, Huntingdon and Lincoln, made to the king, and judgement of his court, diverted towards Wiggshall, by Well dam, the sands were grown to that height in those channels, wherein it had formerly passed, that the waters of the said town of Walsoken, could not drain any longer that way; by reason of which no less than three hundred acres of ground sowed with winter corn were in the seventh year of the reign of the said king Edward III. overflowed and drowned. see Dugdale page 256.

As by the presentment it appears, that it was at the suit of the inhabitants of the several counties before mentioned, that the waters of Wellenhee, as they were then called,

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were

were diverted from their antient out-fall at Wisbeach, and turned to another at Lynn, it must be supposed that the latter at that time must have been the deeper and better of the two: and consequently that the former had suffered decay, as it had antiently been the only considerable one; and the latter must have been greatly improved, as it formerly had been a very small and inconsiderable one. Which diversion of the waters by Well dam towards Lynn, being then in the 11 of E, III. spoken of as a thing formerly done, and as the channel at Lynn must be supposed to be at that time sufficiently capacious, deep, and fit to carry them off to sea; or otherwise it must have been very imprudent and absurd, to have expected such a relief by such a diversion.

And as that channel, before the time of the turning the waters of the great Ouze that way, was a very small and inconsiderable one, so those waters

ters must have diverted and turned from Littleport down into that channel long before, and in very early times.

And as it is evident in this instance what a pernicious effect to the channel the diversion of the waters out this antient course of Walsoken, which was also a part of the old channel, produced, it will be easy to conceive what prodigious hurt the channel and outfall of Wisbeach must have received by the diversion of the Great Ouse; to which the diversion of the waters from Walsoken by Wiggshall to Lynn, also succeeding, these two alterations must be looked upon as the great causes of the bane and ruin of the antient and original outfall at Wisbeach.

I have been the longer upon this head, not only as it was a principal point, but as I was willing to shew in general the gradations by which the

Level seems to have become totally and constantly surrounded, and the antient river at Wisbeach brought into a state of decay: without such violent commotions in nature as this Island does not seem to be commonly addicted to: and which we have no Warrant from history to suppose; I shall therefore now proceed.

Eleventhly, To shew that the country about Boston and Spalding in Lincolnshire, as well as Marshland in Norfolk, and probably divers other parts of the marshes, which were originally gained from the sea and imbanked by the Romans, after they had been inhabited, cultivated, improved, and in some parts planted, were either wholly, or a great part thereof, by some great and extraordinary breach of the sea banks, or the banks made for defending them from the land-floods, or both, inundated, and lay depopulated and waste for some considerable space of time; in which they became raised
by

by the silt of the sea waters, and by the fullage and soil of the freshes meeting therewith much higher, than they were originally, or at the time of their first imbankation and cultivation, till at length by numerous succeeding accidents of that kind they came to be raised as they now are from ten to sixteen or eighteen feet in some places higher than they were at the time of the first imbankation.

That the country about Boston, and Spalding and some parts of Marsh-land, at least was inhabited, cultivated, and planted, when its surface was from ten to sixteen or eighteen feet lower than it is at present, is evident from those several articles before mentioned, which were found at those dephts under the present soil. (see proposition 8)

That this must have been after the imbankation, is manifest, from propositions the 7th and 8th.

They

That they were inundated and depopulated, either wholly, or in part, by some great and sudden irruption and breach of the sea banks, or the banks made for defending them from the land-floods, or both, is highly probable. By the many instances of such-like breaches in the sea banks having happened in the neighbourhood of Boston, about Wif-beach, and in Marsh-land; some of which have been already mentioned in this discourse; to which may be added the following relations to be met with in Dugdale.

In the 15 E. I. in the year 1286, (see page 11) where speaking of Holland in Lincolnshire, he says, there was a great inundation in those parts; at which time the most of Boston was drowned, and the monastery of Spalding suffered great loss.

In the time of Edward III. it was presented by the jurors, that a certain bank extending from Terrington to the gutter
of

of Walton, called Nobeche-gole, was much torn by the raging of the sea.

And in the year 1613 (the 11 J. I.) on the first of November, happened a very great breach of bank, and dreadful inundations of the sea, which is recorded in the church of Wisbeach, upon the East wall of the South aile, and of which the jurors for the hundred of Freebridge in Marsh-land, presented at King's Lynn, on the 9th of December, the same year.

That four hundred rods of a sea bank belonging to the town of Terrington, were ruined by the rage of the sea that happened at the time before mentioned.

And that there were at that time lost 1876

sheep, amounting to the sum of L. 458 0 0

Great cattle 120 valued at 322 0 0

Corn sowed in the field 480 } 720 0 0
acres at 30s. per acre.

Hay lost in the field and }
barns to the value of 200 0 0

Corn

Corn in barns to the value of 700 0 0

Grass in the fields to the value of 500 0 0

Dwelling houses utterly ruined and wasted in number 13

And 142 Dwelling houses impaired to the value of 1000 0 0

Bedding and other household stuff lost to the value of 40 0 0

In this distress the people of the town fled to the church for refuge, some to hay-stacks, some to the baulks of the houses, till they were near famished; poor women leaving their children swimming in their beds, till good people venturing their lives went into the water to fetch them out at the windows, whereof Mr. Brown the minister did fetch several to the church upon his back; and had it not pleased God to move the hearts of the Mayor and Aldermen of King's-Lynn with compassion, who sent beer and provisions thither by boats, many must have perished; which boats came the direct way over the soil from Lynn to Terrington.

It

It was at that time also presented, a creek which now runs under Ter-
rington bank, and underneath them,
hath within four or five years last
past run half a mile off, and that a-
bout twenty years since it did run
about a mile off.

That they think that the approach
of the said creek is the greatest cause
of the decay and overthrow of the
said banks; and at this present, the
said creek runs where banks have
lately stood; being twenty four foot
deep at low water.

And that by the said outrage there
are four other great creeks worn in
the whole ground to the townward,
where there was corn reaped the last
harvest; whereof two of the said creeks
are four score foot broad each, and
near thirty foot deep, and are worn
to the townward within ten rods of
the Indyke, by the reflowing and ebb-
ing of the waters from out of the
town to seaward; and that those creeks
were so worn within the space of for-
ty eight hours

It

It was also presented, that there had been four score and two rods of bank made very strongly with lime and stone, which cost at the first making between sixteen and twenty pounds per rod; and others which within fifty years last past cost making two thousand and twenty pounds, and that nine score rod, part thereof, which had for twenty years last been made with earth, straw and wood, at four pound per rod per annum; which is for every year seven hundred and twenty pounds:

That there were other six rods of stone wall made, which cost two hundred pounds; the yearly repairs of which for the space of twelve or fourteen years last past cost two hundred pounds per annum:

They also presented, that the salt marshes of Terrington were exceedingly worn away; That the king's majesty

ty had lost a piece of marsh called the Gonge marsh, containing about three hundred acres, besides one hundred acres of other marshes intirely lost in thirty years time; Which marshes they suppose were lost by the ebbing and flowing of the sea into the creeks, wearing them larger and deeper for want of dams to prevent the ebbs from running out.

It was likewise presented, that the waters of Wisbeach and Elm, had antiently fallen to the four Gotes, as they then did, and from thence in the memory of man, more than a mile off Terrington banks; And as it is very probable that in antient time they have fallen to the sea much farther off.

And in their opinions, upon their view taken, they thought they might at that time be carried a nearer way to the sea; viz. from the four Gotes aforesaid, over Tyd marsh and Sutton

ton marshes into a creek there called King's creek, and there to fall into the deep called Sutton's leam, and so to the sea; which is a shorter course for the river by six miles, and had a much better outfall.

The damages mentioned in this presentation relate only to the town of Terrington; but the like damages and losses happened at that time to all the other towns of Marshland; to the amount in the whole of thirty five thousand, eight hundred, and thirty four pounds.

I have been the more particular in the foregoing relation, because it not only shews the great calamities which such accidents have occasioned; but it also describes the manner in which the tides and ebbs operate upon the marshes, over which they flow and reflow; and gives something of an idea of the antient state and course of Wisbeach river, and the way

way in which it formerly passed to sea. To which, an observation may be added, that nature was not then carrying on, nor perhaps ever has been a regular and constant retreat of the sea from the coast, but if in one place there has been a retreat, in other neighbouring places there has been as great an advance; insomuch that if on the one side, land has been recovered, on the other not only land has been lost, but churches and houses have been taken away and swallowed up; according as the course of the channels have been obstructed or altered by such accidents.

To the foregoing accounts I shall add that in the year 1619, (17 J. I.) the Commissioners of Sewers setting at Peterborough, and having in consideration the setting up a sluice at the Horse-shoe, the jury being divided in opinions, application was made to the lords of the Council to acquaint them therewith.

Upon

Upon which the inhabitants of Marsh-land exhibited a petition to that honourable board, imploring their care for the safety of that country: and intimating that the building of that intended sluice would be an apparent overthrow thereof.

In consequence of which representation, Mr. Henry Kirvell, Mr. Robert Balam, with some others, were commissioned, to take a view of the danger of this country on Terrington side, by the fretting of the channel as it then ran: who accordingly did view the same, and certified, that the channel of fresh waters did very much hurt to Terrington, and the whole country of Marsh-land; and that by conveying more waters that way, the whole country would be endangered; and therefore for the greater safety thereof, they were of opinion, that a new cut, made from the four Gotes over Tid and Sutton marshes into King's Creek, would be the best issue for those waters.

The

The river Nene being brought from Peterborough to Guyhirn between sufficient banks, for the better grinding of the out-fall; and that the river should be cut straight from the Horse-shoe to the four Gotes. (see Dugdale. page 282.)

As it appears by the foregoing accounts that those marshes, which were originally gained from the sea, have in later times sustained great damages, some of which have been almost sufficient to depopulate considerable parts of them, and as the phænomena and discoveries before spoken of, evince that they have been liable to, and have suffered such like calamities in more early times; but yet after the cultivation and improvement thereof, so the great accretion and increase of the soil, and great advance of the surface of those countries, plainly evince that there must have been a time since their first recovery and cultivation, in which some such like accidents have

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not only overwhelmed and depopulated them; but they must for some considerable space of time have laid inundated and desolate, before they were again recovered and inhabited.

It is probable that they were originally inhabited, cultivated and improved by the Romans, who being at the pains of recovering them from the sea, would most likely be inclined to cultivate and improve them, to make them profitable, by way of recompence for their labour, and this seems agreeable both to the disposition and produce of those industrious and enterprising people.

For after the draining of the Pomptine marshes in Italy about the year 593 after the building of Rome, before they entered this Island, where in all likelihood they had learned the art of improving Marsh-land; the country-people, allured by the richness of the soil, settled themselves there in such abundance,

bundance, that there was said to be not long after three and twenty tours to this place; it being a land capable of many thousand husbandmen.

It is therefore very probable, that being allured by the fruitfulness of the soil of the marshes, recovered by them in this Island, they might make a very rapid progress in the improvement thereof; and being inhabited by them for near two hundred years, it might have been left by them, or at least have been made by them, a very flourishing country.

But their divisions and distractions at home calling them away, and they taking many of the civilized Britons along with them, and the country being involved in wars with the Scots and Picts, before they called in the Saxons to their aid, who at first being employed in those wars, and settled in other parts of the Great Level above them, being long

T 2 neglected,

neglected, and little regarded, the banks of the former, and rivers and drains of the latter, would of course fall into decay and both would become desolate, and lye as it were wild, and lost, until things were more settled, and the Saxons had established themselves, and planted their several kingdoms therein; which they would then begin to improve by such methods as were most agreeable to the soil, the nature, and situation thereof; and to their works it is most reasonable to impute the regaining, and improving of the marshes; as, to the number of religious houses in time rising up, may be ascribed the most early attempts for the recovery and improvement of the upper parts of the Level, which being at first partially, and perhaps only temporarily, annoyed, by the works of the Romans, soon after totally became a deep and horrible fen.



ERRATA.

Page 54. l. 20. for *imbankdering* read *imbanking*.

Page 54. l. 21. for *boring* read *bordering*.



(1)

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